

American Forestry

VOL. XVIII

DECEMBER, 1912

No. 12

RIVER DRIVING

By W. R. BROWN

THE latter part of April is a time of suppressed excitement from the general manager down to the last "river hog." At almost any moment over the phone may come a call from some camp watch far up in the wilderness that the ice is going out, the streams are opening up and there is a good "driving pitch" or "head of water" bank full, which means that the logs can be floated and men should be rushed to take advantage of the freshet. Word is quickly passed to walking bosses, clerks, toters and wangin men, and the various foremen start their straw bosses on a hustle through the boarding houses and saloons known as "blind pigs," to gather up the "white water" men for their particular "wangin," and straighten out many a timber jack, who for the last two or three weeks, since returning from the winter camps, has been industriously liquifying his roll. As rolls are by this time scarce, and borrowing precarious, it is now only a question with "Jack" whether to go with the short drive as a "river hog" or "joker," and so return in the minimum time to the Elyseum Fields, or hire out as a crackerjack "white water" man on the "long route." Meanwhile a warm April drizzle falls from under a leaden sky, and the news spreads like "pay day" that there is good driving on Kennebago.

All the previous winter the silent flakes had been piling up a deep blanket of purest white under the thickly shaded hillsides, and solid floors of ice had been accumulating back in the dismal swamps as reservoirs for the coming flood. During the bright, sunny days of March the warm breath of Spring came to

touch and invisibly dissipate the great drifts, and later a series of hot days and warm nights in April breathed deep upon the still white carpet in the green woods, which could almost be seen to settle into a litter-strewn yellowish mass through which roots and stones pushed their heads and the wet branches of fallen trees glistened in the sun. Each complaining, imprisoned stream burst from its wintry sleep in a torrent that rose and fell as the frost of night succeeded the warmth of day, and dashed away to the lakes or rivers below, piling up sparkling walls of ice along each bank. The logs piled in deep tiers on the banks, or across the icy back of the brook, tremble with fettered energy, needing only a touch to send them rolling downstream on the breast of the rising torrent. From the little stream they float to the larger river, possibly across several lakes, and finally, joined by many thousand more from other tributaries, form one large body in the still waters above some mill. To gather them all safely in fills two exciting months of the river driver's life, and the moment for departure is eagerly awaited.

The expert driver is an interesting but disappearing type of American frontiersman. He first is seen as he sallies forth from the company's store, where he has been trusted for an outfit, sporting a pair of laced shoes with long caulked or spikes in the soles, to give a footing on the rolling logs; heavy pants not yet "staggered"—that is, torn off below the knee to afford greater ease in running about over the logs—and held up by a brass-studded belt; a red flannel shirt and felt hat, a meal sack



MEMBERS OF A FRENCH AND INDIAN CAMP CREW.

thrown over one shoulder with a change of "dunnage," and a copious pipe to complete the outfit. The meal sack, known as a "Kennebecker," because first used on that river, contains two small potatoes, one in each corner, around each of which and the mouth ropes are tied to form a knapsack. This is filled with what is known as "wangin," a change of clothes, and those of Johnny Cannuck are soon surreptitiously overhauled by the cook to confiscate the offensive and evil-smelling tobacco, which the native Canadian delights to raise and smoke and which, it is said, will locate him for miles.

The drive finally takes its start from the front of the company's store in a long farm wagon, across the sides of which boards serve for seats and which is soon crowded to overflowing with forty or fifty river drivers. With a great crack of the toter's long whip, the six heavy horses start with it up river, a tardy candidate appearing at the eleventh hour and racing wildly after the disappearing van, helped on by the

efficacy of many waving bottles. Hilarious and pugnacious, the crew rolls along for a day or more, by farm land and settlement, until at last at the "Jumping off" place, a sobering walk of fifteen miles through the melting snow knee deep, brings them to the "landing" or scene of work, where is either a deserted winter logging camp, or a few white tents pitched in the snow around a roaring fire.

Here what is known as the "rear" is started. Many tiers of logs, rolled ten deep, have been piled, end for end, down the bed of the brook, through and under which the rising water gurgles and roars, and it takes but little loosening to send glut after glut quickly on its way down the stream. This is comparatively easy, and the qualities which go to make up the real river driver do not appear until a clear channel is effected and work upon the open water begins. Then latent forces come into action; each man's skill and experience is at the test in contention with the might of nature; courage is opposed

to chance, and the ever-hoovering sable wings of death. A day with the river drivers at this time may be full of incident, and we have chosen as characteristic, and the cause of much comment, a race between the Swift and Dead Diamond drives in the year of 1900.

It was betimes that gray morning that we rolled over in our warm spreads to the prolonged and artistic "T-U-R-N O-U-T" of the "cookee," that omnipresent assistant to the cook, which would have shamed the Angel Gabriel, as it swelled out into a high-pitched scream.

Outside the big open fire was crackling loudly, and the gruff comments and yawns of the men mingled with the rat-tle of tin dishes. Although assured of the lateness of the hour by the tin clock in the cook's tent, we could just see a thin, white streak of dawn growing visible in the starry heavens above the black cathedral spires fretting the ridge of the eastern hills. This incident of the clock, set ahead quietly by the cook the previous evening, although time-

honored and well known to all, evinced on the part of the boss the evident desire to avoid the appearance of crowding, but did not prevent a thin, gray, crescent moon from throwing her frosty light over a scene not lacking in the elements of the picturesque. Our tents had been pitched in a gorge between two hills which rose above us, silent and mystical in their primeval forest vastness. The little river, in dim outline beneath us, flowed through a now disused dam, whose posts and piers were faintly visible in the silvery mist between the cliff walls, where the water gurgled and boiled. Our tents, four in number, stood around an open fire, each shining white and faintly luminous, like some spectral thing, by the dim rays of a single lantern. In sharp relief, and ruddy against the fire, the various pots and kettles of that autocrat, the cook, boiled and simmered on many jointed "S" hooks at various heights above the blaze, while at each side tin bakers filled with browning pans of warm biscuit caught the full glow of the ruddy logs,



A "HEAD" OF WATER FROM THE DAM.



SLUICING LOGS AT A DAM.

and crackling sparks peppered the soft tops with a steady bombardment. At last, with a final shift or two of the pans, to even up each one's share of sparks, that "stomach burglar," commonly known as a cook, with a deft twist, turned each pan upside-down on the board table, and offered for our delectation that steaming creation technically called "sinkers." At this signal to "fall to," the dim forms of the river drivers moved, tin plate in hand, around the fire, seeking their turn at the various pails and pans, a cookee standing meanwhile at each side with steaming kettles of tea to fill their proffered cups, each calling out the while the exceeding great merit of his own decoction over that of his comrade, and embellishing his claim for attention by serving up in fancy all kinds of favorite drinks, both to show their whereabouts in the dark mass of figures and to relieve the tense gloom of the men. Beyond their frequent calls, like guiding bells in a fog, nothing but low murmurs were heard, for the river driver commonly arises stiff and sore

and eats his mince pie with his "hat on." Neither is he given to joking until his sore feet have become accustomed to the stiffened and cold driving shoes in the softening influence of the water, and the boss is at such times sometimes referred to as "Bruin," on account of the growl which he hands out to some would-be deserter in pointed reference to their past, present and future characters and possible condition. That they are stiff and sore is not to be wondered at, for all the previous day they had been waist deep in icy water from early dawn to twilight, and had tramped through the snow and slush in the gloaming back to camp, and, after a hasty change of wet for dry nether garments, had crawled in between the spreads to rest, dry out and sleep all that was possible; which to the tenderfoot was not a large item, due to the tuneful notes emanating from the more hardened.

As the river mists lift to the hill tops like a gauzy veil, one by one, the men disappear down the dark road where it wound cavernous beneath the roof of



"BOOMING OUT" AT A DAM.

firs, the sparks fly far up above the trees to mingle with the few remaining stars, and we sit by the fire in privilege alone, save for the now silent cookees, who steal about collecting the scattered plates and dishes, and for a few moments we linger to drink in the wilderness of the solitude and the splendid breath of the new day crimsoning the east.

The stream we were driving was called the Diamond, which separates near its mouth into two branches, the Swift and the Dead, the first of which it was our duty to clear, and our endeavor was to drive our rear past the point of juncture before a rival crew on the other branch could arrive. Telephone lines which met at a common central below and ran on trees along each stream, kept us in constant information as to the progress of the other crew, and on the day in question, owing to their equal nearness, a close race was promised. The natural rivalry of the two bosses during many previous seasons brought each of them a fair share of victories; enough to create the

liveliest interest in the success of this drive, and their eagerness spread to the other men in a desire for the first place this year.

Our boss, his beard grey in the woods service, was a short, wiry little man of dynamic energy, and tireless and fiery in disposition and in his treatment of the men. Knowing every rock and eddy in his particular stream, he was like it, quick and impetuous in action, and when stirred to a high pitch, capable of great things but liable to unforeseen rocks and jagged corners. His rival, on the other hand, was immense of stature and ponderous, of equal age, will and experience, but careful and circumspect in disposition, relying more on well-laid plans than on the opportunity of the moment, and well suited to his stream, which flowed deep and still for many miles in a flat and alder country and, when not overcharged with floods, carried the logs evenly and smoothly to its mouth. It was jokingly said of him "that he could run logs on a heavy dew," but should the rising floods swell above the low banks, the logs would, in

every direction and in the most perverse way, twist as if alive and "gill-poke" into every "logan" and estuary.

Both men had a small coterie of old hands who followed their fortunes year by year and upon whom they put the most important work, who tended dam or telephone, watched gorge or eddy, ready to blow up with rend-rock a quick-forming jam, or were to be relied upon wherever especial diligence and alacrity was demanded. With such a nucleus, a various and motley crew had been gathered together, composed of every nationality and color, the body of whom possessed a certain swing and balance that bespoke the woodsman, but inevitably containing some specimens of the "farmer" and "gill-poke" variety, soon to be weeded out by a process of "white water" isolation. The retribution of such incompetents, taken along on their sole statement of ability, was swift and certain when the logs, being all rolled in from the landings on the banks, began to run in quick water and their awkwardness became apparent, or

they were found hugging the shore, not being able to "cuff them out" with the others. Immediately they would be spotted by the irate boss, followed by an invitation to see the clerk about "time," and started with little due them on a long walk back to the settlements from which they had so lately come in teams as "white water," "crack-a-jack" drivers.

We had but four miles to drive to reach the mouth of our stream, and conflicting rumors had reached us over the telephone of the whereabouts of the other rear, sent out apparently to avoid disclosure and lull the immediate activity of our division. But after a careful estimate of the situation, held in front of the fire in the evening, it was decided that to be at all safe, a special effort must be made to reach the conflux of the brooks the following day.

It was given out among the crew that the rival crew would surely be there and that their only hope rested on a few hours. Immediately a messenger was sent off into the darkness to carry



LOGS GOING OVER A DAM ON THE WAY TO THE MILL.



A "WING" OF LOGS.

the word many miles above to the great pond dam to lift all the gates at midnight and allow the imprisoned body of water stored there to rush down in a flood that would reach us by dawn and furnish the power to raise and loosen the tightly snarled "jams" and "wings."

One day alone could be drawn from this reservoir, and that exhausted, the golden opportunity would be lost, so all the hostages possible having been given to fortune and the dim twinkle of the messenger's lantern having danced to nothing among the trees, we at length follow the tired crew and await the events of the coming momentous day.

Not many minutes had we reached the banks that gray morning and the men scarcely taken their first cold plunge, when far above came a long, low rumble on the wind, accompanied by a faint intonation of the booming of logs, and the word was passed around that the "head" was coming. Little by little, the roar of the surging water seeking an outlet increased in volume, and the deeper notes of the great butts resounded like cannon. Up a clear stretch of stream from our vantage

point a thin, silvery line of water glistered first and rapidly grew into a dark flood wall, upon the face of which a seething mass of sticks tumbled over and over and swept everything before them. Loose logs, caught up by the rapidly hurrying water, ran continuously where the current was swiftest and were soon borne to the front as the shores retarded the side water, causing them to outrun the flood itself and charge again and again to the shallows as if taking a fortress.

Instinctively we drew back as this pounding mass rushed by, and then all hands to work with a will on the now floating and impatient "wings," trembling with vibrant energy. Here the men ran, unloading a log or twisting one there, until, of a sudden, the front of the "wing" gave way, and a quick scramble for shore ensued from off the moving pile as it slowly unrolled in the quickening water. Often there was not even time to reach the shore, and a few were seen performing to the best of their ability a lively sample of footwork on the largest stick obtainable, their cant-dog used for a balancing pole and

carried rapidly perforce downstream, until some favoring eddy offered a quick jump to the shore. Or often a "center" being loosened from off a sunken boulder, a man or two would be left, knee deep, on a pedestal of rock, unable even to turn around, and obliged to stand there for long minutes like disconsolate cranes, waiting with what patience he possessed the arrival of the bateaux and rescue.

A great shout and laughter goes up from the men on shore as some unlucky fellow rides by, his log rolling quietly back and forth as it runs through the curling waves, and many sallies enliven his interest to keep uppermost, such as requests for dry matches, to close the door after him when he goes in, or carry their respects to the muskrats, etc. One man who persisted in wearing a derby hat, because he claimed it shed water better than the usual felt, was soon called "Beaver" from the spectacle he presented when, having lost his balance and gone in off a breaking glut, nothing was visible of him but the crown of his hat bobbing along on the waves toward the bank. Many a narrow chance is taken by such men when, clinging to some log, they are drawn swiftly sideways upon a "wing" and, taught by experience or observation, extend full length upon the top of the water to avoid the under-tow, which would draw them in, as it often does some poor fellow, never to emerge again until the "wing" is rolled away. In such a case they shoot out over the top before the oncoming logs crush them as in a vise. In a predicament of this kind a certain wag of the camp, being in a condition of equal unstability and jollity, came up beneath a floating log so that his head and feet protruded on each side. As the men hastened in the bateau to extricate him from his dangerous position, he sung out to them: "Never ye mind me, but ketch that poor devil standing on his head there beyond." In the stiller water downstream, where loose sticks float during the night and form in gluts, deer have been found strangled by the oncoming logs while attempting to swim across.

It is the danger that gives zest to the

work, the fascination of meeting and conquering Nature in her wildest form, a comradeship with the tree on its last long journey to oblivion, that calls to the woodsman each spring with an inexplicable power, once felt, never wholly to leave, like the thrill of the Alpine climber or the control of great speed. Many an expression betrays this as the loneliness of the river after the logs are gone or the cheers and excitement in the running. This tenseness of interest carries men along without fatigue for many hours, unconscious of their exposure in the interest of the advance, and end being always in view, while constant opportunities for forwarding the whole body in brilliant individual work appeals to their personal pride. It is this tendency to do something brilliant that has constantly to be checked in operation for the surety of combined effort over spasmodic, unorganized work is nowhere so evident. A good illustration of this was going on before us. From bank to bank the stream was full for some hundred yards back with a tight tangle, and near the shore, to one side, a crew of ten men were quietly working as one man under the experienced leadership of a subboss. Ardently they worked a channel along the shore, although here the logs lay dry and hard. Out in the center, where the whole mass was a-tremble and gave every appearance of breaking apart in a moment, two men were trying first one log and then another, seeking the key which held. For a moment they seemed successful as the jam settled, only to come up hard again on the selfsame obstruction, till, of a sudden, a cheer broke the air from the men at the side, and, sighting over the top of the pile, it was seen to be slowly moving downstream, and the heaping logs, wedged together in a "nose hole" until now, flattened out to the sides in the channel, and shouting to "keep her going," all together the men pushed with might and main and used their cantdogs for bunters between shore and the edges of the squeezing and groaning raft, till at length, due to the gathering momentum, all uncertainty was over, and onto the broad



LOGS ON THE ICE JUST BEFORE THE SPRING FRESHET.

back of the jam, some of the men, to celebrate their victory, like their Indian ancestry of old, danced up and down with yells of triumph before running for the shore.

Our force was divided into two equal crews to take the rear on each bank, and a shout would be exchanged across the water as one crew passed the other and obtained temporary advantage. Behind all, in a bateau, the "rear" boss, with a long pole over his arm, caught any straggling logs and rescued any stranded men and was relied on to leave the shore clean as he passed.

About eight o'clock, on a small promontory which commanded the river, a thin column of smoke was seen ahead, showing where the "first lunch" was pitched, and the clarion tones of the cookee, in a prolonged tone, echoed, first up and then down stream, for "Lunch-o-o-o-n," and at once, from far and near, his cry was carried along the turns until the farthest man "tending out" received the welcome news. Wonderfully quick over logs and through swamps, the men made their way to where the steaming kettle of beans and the buckets of biscuits and sweet-

stuffs formed an inviting circle to their hungry gaze, and, with hands and tin plates heaped high and a cup full of tea from the kettle of the ever-circulating cookee, they throw themselves on the ground and enjoy to the full a few minutes of rest and the satisfaction of a ravenous appetite. Then, when a pipe was lighted and well going, the boss first and the most ambitions second, shoulder their cantdogs and file off again to work.

We had come two miles since early dawn. Below was Ellingwood Falls, a long, narrow gorge for a quarter of a mile or more, whose ragged cliffs rose sheer from where the water ran swift as a sluice, and ragged boulders and sharp turns, made famous for jams, ended in a flat shallow at the foot. Upon this, up-ended and bunched, logs hung and gathered and refused to be floated. Years before, "abutment sheers" had lined the way and an "apron dam" or two across some ugly pools had served to mitigate the worse places, but most of these had long since rotted or worn away, and, all together, it was an ill-omened and treacherous place. Tradition had it that one drive,

before the days of telephones, had been "hung" upon a jam at the foot, while a messenger was on his way above, filling the whole length with a tangled mass, and before it could be picked apart a good week had slipped by, together with the best of the spring water, and the bleaching logs had to be "hung up" to await the return of another year.

A few, only, of the men were chosen to "rear" this difficult part, while the rest went below. This was a fine place to watch the more expert and adventurous. A quick and, for the moment, exciting incident occurred before us which was the means of saving one unlucky man's life, but otherwise unnoticed by the principals. A driver was out alone in some particularly rapid water upon a "center" putting down a charge of dynamite tied to a long pole. He had lighted the fuse, about a foot long, and estimated to give him time to retreat, and had jammed the sputtering

stick to its full length beneath the tangle and turned to run for the shore, when, by some mischance, his foot slipped and he sprawled full length upon the quivering timbers. We expected each moment to see him go skyward above the heavy charge, when, like a flash, a short Irishman, named Crowley, made a desperate leap to the jam, caught him as he ran by the collar, jerking him to his feet, and together they barely reached the shore when off went the charge, throwing up great junks to the tree tops and raising a perfect geyser of water. The jam lifted as if alive and rushed pell mell downstream, while unconcernedly, as if nothing happened, the two men turned to the woods and sought a crossing below. If thanks were ever extended, it was probably in the settlements later, when the little Irishman himself, strapped, might live for days or weeks on the good-will of his comrades, for Jack is commonly altogether free-



LOGS ARRIVING AT A SAWMILL AFTER THE RIVER TRIP.

handed when off duty and believes in a short life and a merry one.

Our advance guard had done their work well, and the thin walls left at the front, where the wings had lain, crumble at a touch and vanish downstream, so that, after an hour's hard work, this difficult part of the river was clean and the forward march taken up again with new vim. Hardly from this point could we follow the winding shore or detour around some intercepting bayou fast enough to keep abreast of the moving "rear," and after an unusually long advance, would come out upon some point where a long view was to be had of the river, only to see far above us a thin line of forms filing along the shore like Indian warriors, partially hidden in the intercepting foliage, or again, on nearer approach, like their enemies, the stern Puritan musketeers, marching with matchlocks over the shoulders, as the cantdogs shone in the sun.

The long shadows of the pointed firs were creeping fast up the eastern bank of the stream when the rattle and clamp of the camp outfit is heard approaching through the stillness of the evening wood. Soon it drew in sight, piled high and well corded upon a large dray, sounding along the road to the merry tinkle of the pails and pans and passes us drawn by four straining horses. The men exchange shouts with the "toter" and a retinue of camp followers, whose appearance augured well for the advance, nor could they now turn back, for was it not to be set up at the very mouth of our stream and goal of victory? Following it ahead to the forks, no immediate sign was seen of the other drive but a messenger who had been sent ahead secretly as a scout reported them at great endeavor not far away. Thither we turned to estimate chances. Their progress had been slow but sure. Each winding turn and "pole logan" had been systematically searched and the logs therein gathered into rafts, towed out and sent adrift in the main channel. Their certainty of arriving that night had been figured out to a nicety and no possible chance was supposed to have enabled our division so to do. But now that we were known



SHEER LOGS.

to be approaching, the inert logs moved all too slowly in the meandering water, and the alders held back stray sticks with pernicious obstinacy, trying to the patience and spirit of the men. Near the mouth, a widening of the stream at the turn of a bend formed an immense eddy where the logs swing round and round in a circle, and six boats were feverishly engaged at this time in trying to sweep this maelstrom. Every time the great mass swung around two men jumped from each boat onto the logs at the outer edge and gathered as many together as could be reached and bound with the long pick-poles, while the crew in the boat waited expectantly on their oars until all together, at the command "head boat," they churned the water to foam to tow out their small glut from the vortex and guide it down stream. For a critical moment, each boat, as it came around in succession, hung in a balance against the might of the current and the slightest turn of a stroke determined their separation. High up on the bank at one

side the boss was standing to direct the movements of all six boats and to facilitate their co-operation with shouts of encouragement and fierce denunciations of failures. His customary reserve had deserted him, and minus coat and hat, he was intent on every movement, waiving his arms and occasionally enlarging the English language in a rich and poignant manner.

Returning to the forks we watched the small encampment rise as if by magic, the six-foot fire logs drawn together and lighted, the rolls of spreads untied and stretched out inside the tents and the many small kitchen utensils unpacked and made ready for immediate use, while the neighing of hungry horses, the barking of dogs and the rattle of dishes woke the evening echoes to a lively scene. Turning from the blazing fire we now heard the sharp click of the striking cantdogs above on our stream and the lusty shouts of the men who were soon abreast of us as they rolled in the last logs by the faint light of the evening glow and the fire's uncertain gleam, and at last, wet and thoroughly tired but exultant, they swarmed about the fire for their last supper on the drive, nor did the crew

above on the rival drive care to descend until we had well moved away in the morning. The gathering darkness had made further work on the eddy impracticable and it must needs be left to soak itself clear during the night.

For this meal extra rations had been set out by the cook, to which was added great basins of milk from a neighboring farm and all else in abundance that ingenuity could suggest, and upon the arrival of the "rear" boats, racing at top speed to the landing, for the last time the clear notes of the cookee sounded the invitation to "turn to" which was immediately and unanimously accepted. For a time all was in confusion as each man prepared his gunny sack for an early start in the morning or exchanged congratulations or plans with his comrades, but as we smoked far into the night with the boss, one by one the men crept to their tents, until the last form to break the stillness of the scene after all others had turned in, was the bent form of the clerk, painfully writing on the top of a soap box by the dim light of a dripping candle, upon which rested a table of wages and a small bottle of ink.

FIRE LINES DESPITE THE LAW

DO TWITHSTANDING the injunction issued by the Court of Chancery last spring restraining the New Jersey State Forest Commission from enforcing the so-called "Railroad Fire Line Law" the three railroads having the greatest exposure in the State have voluntarily undertaken to extend their lines during the coming winter. The Pennsylvania Railroad Company will make new lines on the Freehold and Jamesburg Branch, on the Long Branch Railroad, and on portions of the West Jersey and Seashore System. The New Jersey Central Railroad Company will make lines along the New Jersey Southern Division south of Lakewood. The Atlantic City Railroad Company will extend its lines in Gloucester, Atlantic and Cape May counties. All three roads will also do considerable work in cleaning up and

making effective the lines that have been constructed heretofore. The length of fire lines now in service on all railroads approximates 250 miles. The increase this year will probably raise the total to at least 300 miles.

It is rather remarkable that this law which has been declared unconstitutional should still be so effectively supported by the very parties against whom it was directed; that is, the railroads which endanger the forests of the State. The Forest Commission expects that the decision of the Court of Chancery will be reversed by the Court of Errors and Appeals. Such a decision is earnestly hoped for as a means of enforcing the provisions of the Act where less liberal minded or less far sighted railroad companies are concerned.

PAPER MILLS AND FORESTRY IN CANADA

BY ELWOOD WILSON

SO little is known of Canada in Europe and the United States, and so vague are the ideas regarding this wonderful country, that it may not be amiss to give in a few words some description of it. While far larger than the United States, its habitable portion is comparatively small, although this, through modern engineering enterprise, is rapidly growing, the hardy pioneer pushing forward his railway lines and establishing himself where civilized life seems hardly possible. As one passes from East to West the habitable zone rapidly widens from a narrow strip on the inhospitable Labrador coast, fifty to a hundred miles north of the St. Lawrence in Quebec, gradually growing through the prairie regions until in British Columbia it stretches 1,000 miles, almost to the Arctic circle. Stunted, almost worthless timber in Labrador; immense forests of medium-sized conifers mixed with hardwoods in Quebec. Large spruce and great forests of white pine in Ontario, treeless prairies and forests of poplar through Manitoba, Saskatchewan, Alberta, and, finally, the magnificent forests of British Columbia to the Pacific.

Of all the provinces which form the Dominion, Quebec is in many respects the most interesting, representing as it does one of the oldest civilizations on the American Continent, differing from its sister provinces in language and religion, and retaining traces of the old French tongue and medieval customs. Three-quarters of the population are French, and the majority of these farmers, "habitants," who earn their living in the winter by working in the woods. Along in late August and early September, when the crops are all gathered in, they go to some one of the big lumber or pulp companies and make a contract to cut and haul so many thousand logs 13 1-2 feet long. This is called jobbing and the man a jobber. The

jobber takes his sons, if he has any over fifteen—if not he hires a man or two—takes his horse and sleighs and, sometimes, even his whole family, and goes off into the woods, frequently a hundred or more miles from home. Here he gets provisions from the nearest Company depot, and, building a log camp, walls, roof and floor all of logs, he settles himself for the winter. The camp has one room for the people and one for the horses, sometimes all are in the one room. Bunks of poles are built along the wall, two or three windows about 2 feet by one, are cut in the walls, a rough table and a couple of benches are hewed out and a big iron stove set up. Here the jobber spends the winter, cutting and piling logs until Xmas, going home then for his "devoir," as commanded by the Church, having a jolly time with friends until "Little Xmas," and then back to haul his logs on one-horse sleighs to the nearest lake or river, and going home in March.

In the days of the lumberman this was all, but now have come, dotted here and there like islands throughout the province, the pulp and paper mills, offering indoor labor, bringing in new ideas, founding towns and bringing modern "civilization," which, while not an unmixed blessing, is progress and is bringing light into a darkness almost medieval. The first requisites of a pulp mill are water power—no other can grind wood profitably—a plentiful supply of clean water and a river to carry the logs on their long journey from the forest to the mill, covering, in some cases, two years. So the mill must locate beside a waterfall, and as these occur in most out-of-the-way places, towns of one to five thousand souls have sprung up in the heart of the wilderness. As the entire personnel of such companies must be brought in from other places, it is necessary to



GRAND MERE VILLAGE IN 1903.

provide enough of the comforts and conveniences of modern life to keep them. Some of the mills have given just enough, but the wiser ones have gone much further.

As wood of coniferous trees is the raw material of pulp and paper, these must be an abundant, accessible and sufficiently cheap supply. All of the larger mills, therefore, own their own forests, but not absolutely, and here it is necessary to explain the wonderfully advantageous position of Canada from the standpoint of conservation. All lands in Canada, as originally in the United States, belonged to the Crown, and while in the latter the Government after the War of Independence, in the effort to encourage colonization, parted with them carelessly and recklessly, by wise foresight, Canada acted differently. Here the land is divided into three broad classes: farming land, forest and mining land, over which the Government retains all rights, as well as over water powers, hunting and fishing. An ideal situation were it carefully carried out, and it is, as a general rule. Land fit for settlement is sold on very low terms and easy payments to the settler, who must, however, clear a certain amount of land each year and build a

house. Licenses to mine, to cut timber and to hunt and fish are sold to the highest bidder at auction, and so long as he pays his annual rental and complies with the Government regulations, he is left in undisturbed possession and may sell his rights or will them to his children. The Government demands an annual rental of \$5.00 per square mile per year, the protection of the forest from fire and a tax of \$1.30 per thousand feet, board measure, when the timber is cut. At first the Government protected the forests from fire itself, charging a fire tax, but this protection was so poor, owing to inefficient organization and too much politics, that the licensees petitioned to be allowed to protect their own lands at their own expense, and this request was acceded to. The licensees choose their own rangers, who are commissioned by the Government. This system has worked well, but has been further improved by all the owners of licenses forming an association, which protects the limits. The association is the largest on this continent, representing over 7,000,000 acres of timber lands. Rangers on gasoline speeders patrol the railway lines, following all trains, and crews of two men each, with tent, canoe and camp-



GRAND MERE FALLS. LAURENTIDE COMPANY'S MILL.

ing outfit, patrol the rivers, which are the only highways through the wilderness. One lookout station has been built, and the coming season will see several more finished and a number of miles of telephone lines also. The cost for the season has been a little more than one-quarter of a cent per acre, and it is hoped that a more liberal appropriation can be secured. The Quebec government, through its Minister of Crown Lands, Mr. Allard, has been most sympathetic with this work and has agreed to contribute \$3,000 toward its cost for the current year.

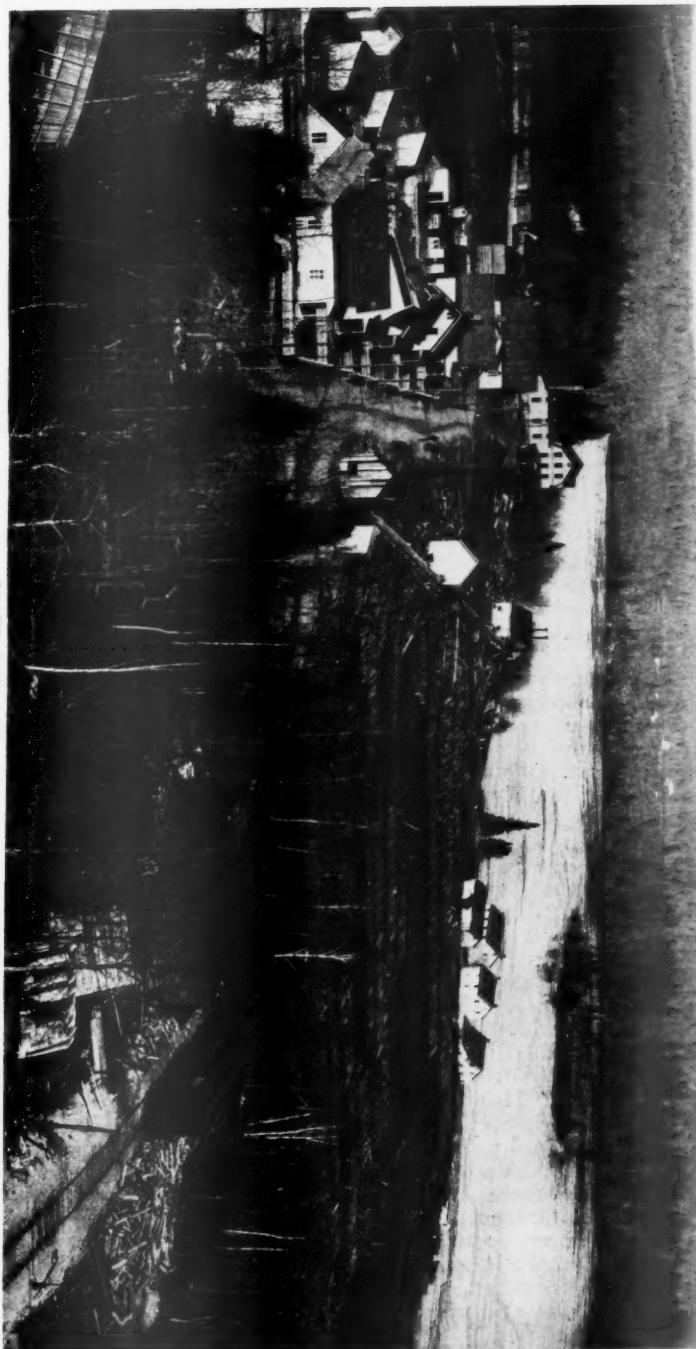
The forestry policy of this province has been an advanced one. For many years there has been a diameter limit below which no one was allowed to cut, and a law has been on the statute books giving anyone who plants an acre of land in trees the right to choose Government lands which may be for sale to the value of \$12.00. About eight years ago the Premier chose two young French Canadians and sent them to the Yale Forest School, and then to study in Europe. After completing their

studies, he established a Department of Forestry, placing them in control, and they have organized this work and made considerable progress along forestry lines. As there was a great lack of trained men, especially those who could speak French, a Forestry School was established as a branch of the great University of Laval in Quebec, and the students are given their practical experience as Government rangers and inspectors during their course and after graduation are given higher positions.

A forest nursery has also been started, where the students have practical training in planting work. In some sections of the province, there are considerable areas of sand dunes, and these will be planted up as rapidly as possible. The great need is for men with some training in forestry who can travel in the woods. There are few sections on this continent where traveling is so difficult. The only avenues are the rivers, with the lakes which empty into them, and the former are filled with rapids which make the descents dangerous and the swiftness of



THE LAURENTIDE COMPANY'S OFFICE AND STORE 1903.



GRAND MERE IN 1903.

the current makes the ascents most toilsome. In running rapids much experience is necessary, and many lives are lost each year in trying them. As the old trappers die out, few men go into the woods very much, and it is almost impossible to get enough woodsmen to act as fire-guards and forest rangers. The present generation of natives are going to the towns and into the factories, and the forest no longer calls to them as to their forbears. So the only hope of building up a corps of men to care for the forest lies in establishing ranger schools for natives, which will fit the men for their work, giving them training in woodcraft and inculcating an *esprit de corps*, paying sufficient wages to make the work attractive. This will cost money, but the Government can well afford it, and it has certainly been proved in every industry that men who are satisfied with their pay and well cared for will turn out much more work than dissatisfied under-paid hirelings whose only object in life is to loaf on the job.

All the problems mentioned above which confront the Government must also be solved by the licensees of timber lands, and of these the only ones who can possibly solve them satisfactorily are the large companies who have sufficient investment at stake in large plants to make it worth their while. The holder of a small territory who sells his cut or who owns a small temporary sawmill cannot afford to do anything but exploit his lands and get his return from them as soon as possible. But with the large companies, with millions of dollars invested in plants which are entirely dependent on their holdings for their raw material, the situation is entirely different. They must take care for the future. Here in Canada, as elsewhere on the American continent, this is just beginning to be realized, and, up to eight years ago, everyone acted as if the supply of timber was inexhaustible. You heard of the "inexhaustible timber supply," "our rich resources" on every hand. The most accessible timber was cut, the waste was prodigal, and fire was allowed to run unchecked. "Why, we have always had fires." "We can't afford to fill the woods with men."

"We have timber enough to last forever." All this in spite of the fact that the country is dotted with the evidence of past conflagrations. One fire about thirty-five years ago completely destroyed the timber on over three hundred square miles in one section. The situation was indeed a difficult one. Owing to the vast areas and the difficulty and expense of travel and the rigors of the climate, no maps had been made. The main rivers and large lakes and some of the timber holdings had been mapped, but only in the roughest way, and no holders knew about their lands. The only people who knew anything were a few old foremen and woods bosses who had traveled the country and knew their way around and had a vague idea about what particular sections would yield.

About 1895 a small pulp company was formed to operate a fine water power on the St. Maurice River called the "Grand Mere," from the fact that right in the middle of the fall there is a rocky island which shows very distinctly the profile of an old woman. There is an Indian tradition of a maiden who waited for her lover until she became old and grey and then was turned into this rock. This company built a small village in the forest and commenced operations. The town was a long way from civilization, communication with Montreal and Quebec, the nearest cities, was difficult, as the railroads were in shocking condition, and in winter one never knew how long it might take to cover the eight-six miles to Montreal. It took three days once, and it was always wise to take snow shoes, so as to be able to get to the nearest farm house for food. The employees of the company lived in little frame shacks and had no conveniences and mighty few comforts. Things also went very badly financially, and about 1903 the company was reorganized. The new manager realized that the first necessity was the comfort and well-being of the employees, and, as soon as he had gotten the company a little on its feet, began to build up a model village. When one realizes how much in advance of the time such an idea was and what it meant to change over and

build up a whole community, most of whom were of the most primitive type and who spoke a different language and were naturally distrustful of strangers and strange ideas, it seems a large undertaking, and it showed broad-mindedness, idealism and courage of the highest type.

The first step was to put the village in sanitary condition; sewers were built, a plentiful supply of pure spring water was obtained, and a hospital was built. The town had been a hotbed of typhoid fever, but in a year this was stamped out. It was necessary to discharge laborers occasionally because they would persist in drinking the polluted water. Then housing and office and mill conditions were improved and opportunities for recreation were provided, bowling alleys, tennis courts and a skating rink. The younger men were encouraged to form hockey and baseball teams, and the success of the hockey and tennis teams in winning championships has done much to rouse local pride and to bring the people to united effort for the good of the place. Probably the most important improvement was a school. This is open to all the citizens and is fully equal to the best public schools in the United States, with an excellent kindergarten, and a manual training course for the boys and sewing classes for the girls. Then the improvement of the village was begun. A landscape architect was engaged and a plan for a "village beautiful" prepared. Old and unsightly buildings were torn down, roads were laid out and macadamized, concrete sidewalks were built and beautiful elms planted along the roads, and masses of shrubbery placed where they would add to the general effect. Vines were planted on the buildings, and many buildings which were inharmonious were remodeled.

The social and spiritual sides of life were not neglected, aid was given to the struggling mission churches, and the people were encouraged to get together for the mutual good. One of the most helpful things was a founding of a branch of the Victorian Order of Nurses. There are two great events of the year when all gather for a general good time—the "Christmas Tree" in the

winter and the "Clam Bake" on Labor Day.

A beautiful park was laid out in the center of the village, and here on summer afternoons and Saturday half holidays everyone gathers to watch the tennis matches. The park is not only good to look at, but gives the children a safe and healthful playground. A club with reading and assembly rooms, gymnasium and billiard rooms, is open to all and during the long winters is used for dances, amateur theatricals and concerts. Then labor conditions were immensely improved, working hours were shortened, guards were installed to prevent accidents from the machinery, wash room and sanitary lockers were provided, sanitary drinking fountains placed at convenient points and lighting and ventilation much improved. In summer the daylight saving plan is in operation, and the employees are free at four o'clock and have the long summer afternoons for healthy outdoor sports.

In 1905 the forestry question was taken up, and the immense holdings of the company, over 2,000 square miles of timber lands, were investigated with a view to introducing practical forestry methods. Accurate surveys of all the company's holdings were commenced and have now been completed. The maps show all topographical details, the location of all burns, swamps and timber, and the areas in the different types of the latter, and all lumbered areas. Stock has also been taken over a large part of the forest lands, so that the amounts and kinds of timber which may be cut are known. Volume tables have been prepared, the first for Canadian trees, and growth studies made of the different species. In 1908 the company began to plant, beginning with 5,000 trees, and plantations have been continued. Last year a small nursery was started, and this has been enlarged this year and will be still further developed. Experiments are under way with different species, in the hope of finding a tree which will be suitable for pulp and will grow faster than the native ones. Norway spruce is naturally the first to be tried. When this problem is settled

all the company's waste lands will be planted.

In 1908 the company started the first efficient fire-protection system and in 1909 persuaded the licensees to unite for the protection of the timber lands along the right-of-way of the new National Transcontinental Railway. This was the beginning of the Protective Association mentioned previously.

In addition to engaging a forester, the company put a forest engineer, Mr. M. C. Small, in charge of its logging operations, and under his efficient management an enormous amount of waste in the woods has been eliminated in the way of high stumps and large tops, burnt timber has been utilized, young growth better protected, better conditions for scalers and more careful methods of measurement. Roads have been opened up, telephone lines have been built, gasoline launches placed on the large rivers and comfortable quarters built for the men in charge of depots and for the inspectors and scalers. The logging department has instituted the first system of competent

logging inspection ever tried here, and this season is trying the experiment of marking trees and lopping tops under competent supervision. "Scientific Management" has been in use for years, and the cost-keeping system of this department is a model.

The employees have also been given an opportunity to subscribe to the stock of the company and have taken advantage of it, and each one feels that he has a deep personal interest in its success.

The influence of all this work has been felt in the surrounding towns and country, and other companies have been encouraged by it to make a beginning along the same lines.

The work of this one man, with a big idea, the infection of which has spread to all whom he has associated with him, has borne most abundant fruit, not only in social betterment, better living conditions and higher standards, but in greater financial prosperity for the company, which has made a record in earning capacity and values.

MR. JOHN E. RHODES' NEW POSITION

John E. Rhodes, of Tacoma, Wash., a member of the editorial advisory board of American Forestry, will, in January, become the manager-secretary of the National Lumber Manufacturers Association with headquarters at Chicago. It was recently decided by the Association to combine these two offices and Mr. Rhodes succeeds Manager Leonard Bronson and Secretary George K. Smith who have so ably filled the positions for some time. Mr. Rhodes, who is thoroughly conversant with the lumber business, having been in it for a number of years, is at the present time visiting the chief lumber trade centers, of the country, ascertaining the sentiment of the lumbermen and the nature of the work which they desire the association to do in their interests. Having thoroughly sounded them he will be in a position, when he takes charge of the work, to develop a comprehensive campaign, which with his great energy to direct it will certainly be carried to a successful conclusion.

TEACHING FORESTRY TO CHILDREN

The New York State College of Forestry at Syracuse University, designated and established by the Legislature for educational work in Forestry in New York, has sent a letter to the principals of all the high and preparatory schools of the State offering to give illustrated lectures and demonstrations upon Forestry before the schools so that every child in the State may understand what Forestry is and may learn to love the trees and forests.

CLEVERLY ADVERTISING BIRCH

The Northern Hemlock and Hardwood Manufacturers Association is sending out a very attractive book on the value, uses and beauty of birch together with a sample of birch wood, the two making a decidedly good advertising feature. The book comprises sixteen pages, handsomely illustrated, and showing plans, exteriors and interiors of buildings in which birch is used as well as a number of styles of birch finish.

MUNICIPAL FORESTRY

By NELSON C. BROWN

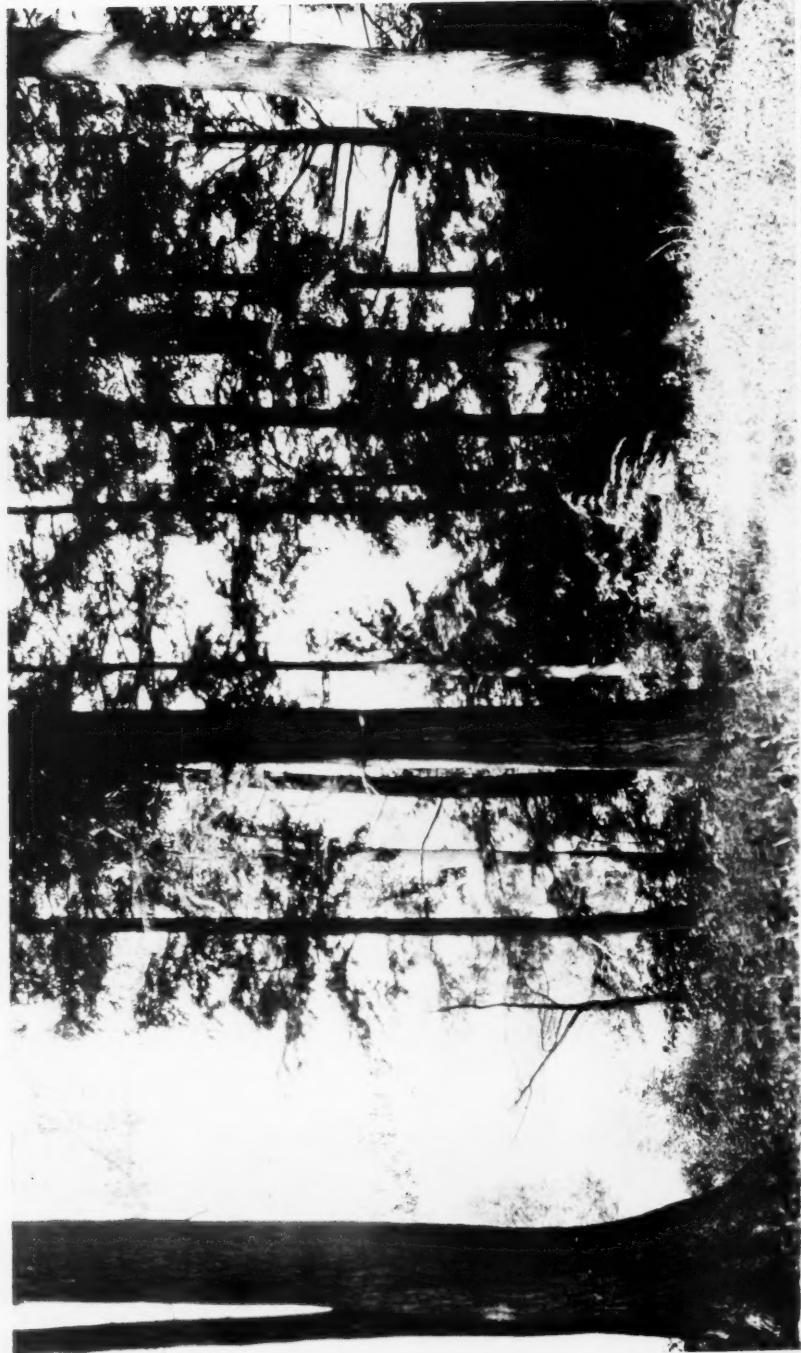
Photographs by H. P. Baker and the Writer

CONSERVATION has become immensely popular in this country. From the initial subject of forestry it has been broadened out to cover nearly every conceivable resource—not only the forests, minerals, soils, etc., but health, human energy, and almost everything else which we can associate with the term conservation. Real conservation is beginning to be practised with our forest resources. Not only has the Government taken up the practice of forestry on the timbered regions of the public domain now called National Forests in the West, but many of our states, realizing the impending

scarcity of the lumber and wood supplies, have taken steps to set aside forest reserves. Lumber companies are following these examples and are abandoning their short-sighted policy of stripping timber without regard to the future. It will not be a great while before our more progressive cities will gradually take up the practice of forestry on extensive parks, reservoir watersheds and on nearby waste lands. Already a number of cities have appointed city foresters to look after the care of ornamental shade trees along the streets and in the parks. Some of these positions include the management



HEADQUARTERS OF THE SYRACUSE CITY FOREST, SHOWING A PORTION OF SKANEATELES LAKE AND THE HIGHWAY, BOTH OF WHICH WILL BE UTILIZED AS MEANS OF TRANSPORTING THE PRODUCTS OF THE FOREST TO MARKET.



LOOKING OVER SKANEATELES LAKE FROM THE SYRACUSE MUNICIPAL FOREST. THE LARGE TREES IN THE FOREGROUND ARE OLD VIRGIN HEMLOCKS.



LOOKING FROM THE FOREST OVER SKANEATELES LAKE, THE SOURCE OF WATER SUPPLY FOR SYRACUSE, IN THE FOREGROUND ARE OPEN AREAS WHICH WILL BE PLANTED TO WHITE PINE, SCOTCH PINE AND NORWAY PINE.



A VIRGIN STAND OF HEMLOCK THAT HAS BEEN PROPERLY THINNED OUT, LEAVING THE TALL STRAIGHT TREES FOR INCREASED GROWTH. NOTE THE MANNER IN WHICH THE TREES HAVE NATURALLY PRUNED OFF THE LOWER LIMBS.

of extensive forest parks—remnants of the original virgin stand of primeval forest for both aesthetic and commercial purposes.

Municipal forests are common in Europe. They are common and popular because long ago it was found that by developing waste lands or those of little value in the vicinity of the cities for growing timber, good profits could be made in forest rotations of from thirty to sixty years. In this way material assistance was given in meeting the city budgets, and, consequently, in decreasing the property tax rate. In a few instances municipal forests under skillful silvicultural management have yielded a return sufficient to meet all the expense of the city and in addition have provided a sinking fund for future emergency, or, in some cases, a dividend to the stockholders of the city, who, in other words, are the property owners.

Besides the commercial aspect of these city forests, they have contributed immeasurably to the health and pleasure of the people by furnishing an enjoyable

breathing spot and place for recreation. In addition, European cities are sometimes wholly dependent upon their municipal forests for their fuel and lumber supply. Thus in many ways they enter into the municipal and domestic economy.

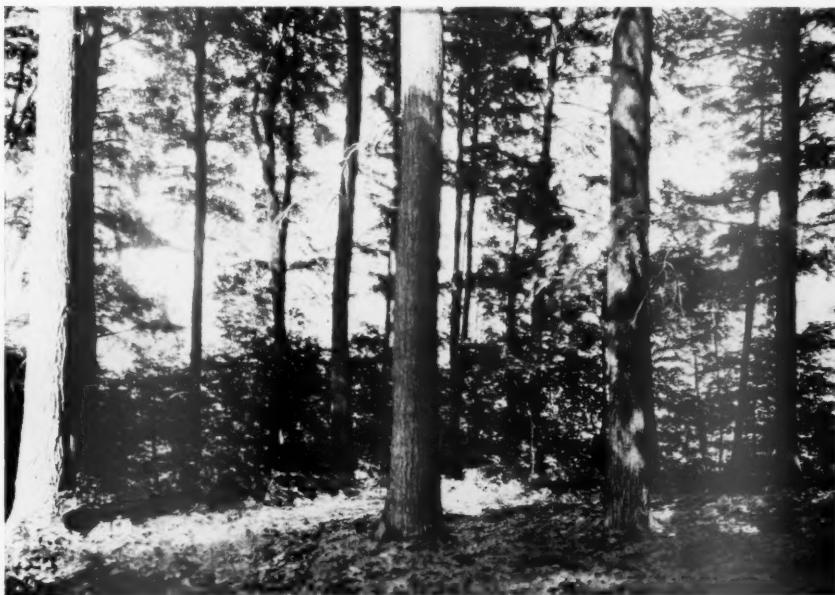
It is only a question of time before American cities will realize the desirability of acquiring waste forest lands within or near their limits, that are unfitted for agricultural development or undesirable for building or other more valuable purposes with the view of placing them under scientific forest management. Several municipalities and private water companies have recognized the advisability of developing their forest lands on the drainage basins of reservoirs both as a source of revenue from the yield of wood products and to maintain the best sanitary conditions. Municipalities and corporations permanent in their nature are better fitted to practice forestry because they can borrow money at such low

rates of interest. Forestry is not a business of quick returns.

Consistent with its progressive attitude on many municipal problems, the city of Syracuse has recently taken up the practice of forestry on a tract of timber land on the watershed of Skaneateles Lake, the source of the city's water supply. The forest was purchased primarily to avoid the possibility of contamination. With this object accomplished, it has sought to develop the timber along commercial lines, while still maintaining a continuous forest cover to protect the watershed. A good forest growth is conducive to clear pure water, whereas a denuded or barren watershed is often responsible for floods and the washing down of silt with a consequent muddy water supply. With this in view, the city has placed the management of the tract in the hands of the New York State College of Forestry at Syracuse University, to serve not only as a demonstration of the possibilities of practical forestry, but also as a business proposition for the city.

The tract consists of approximately 150 acres along the shores of Skaneateles Lake, one of the chain of the so-called "finger lakes," including Cayuga, Seneca, etc., in Central New York. The timber is middle-aged, second growth, mixed hardwoods of practically every known species of the region, with some hemlock. The principal trees represented in order are the basswood, hemlock, chestnut, oak, hard maple, and some scattering beech, hickory, ash, yellow birch, cherry, elm and yellow poplar. Many of the trees are still in the young "pole" stage of development. An estimate of the tract shows that there are approximately 6,000 feet, board measure, per acre. In terms of cordwood there are about 35 cords per acre. This is an excellent yield of timber considering the age and the past neglected condition of the tract.

The object in forest management will be to favor the chestnut, provided it continues to be free from the blight attack, which has spread with such disastrous effects over Long Island, Connecticut, and eastern Pennsylvania.



A VIRGIN STAND OF HEMLOCK, BEECH AND BIRCH. FIRES HAVE BEEN KEPT OUT AND EXCELLENT FOREST CONDITIONS ARE ESTABLISHED. SEVERAL OF THESE TREES HAVE NEARLY REACHED Maturity AND SHOULD SOON BE CUT.

Oak, basswood and cherry will also be favored. These are the most valuable and rapidly growing species, and all will find a ready market in the near vicinity. There is an especially good market in the neighboring cities for poles, posts, ties, cordwood, and box-boards. The soil and site conditions, moreover, are very favorable for forest growth. The species that will be discriminated against are the hemlock, soft maple, aspen, beech, and ironwood, owing to their slow rate of growth, difficulty of silvicultural treatment and relatively inferior quality of wood produced.

In putting the tract under scientific forest management the first operation was to make a topographic map of the area to ascertain the boundaries and the configuration of the land. Along with this, an estimate was made to determine the character of the forest and to take stock of the amount of cordwood and lumber that is now standing on the tract.

For the purposes of fire protection, trails three feet wide were cut down to mineral soil on the boundaries, where no protection such as the lake and roads were afforded, to prevent destructive surface fires either from coming over from adjacent timber land or from spreading from the city forest. An improvement cutting was next made to clean out all the dead, diseased and insect-infested trees and to discriminate against the inferior in favor of the more desirable species. In this operation, an excellent opportunity was given to display the fine points of the forester's knowledge of the proper handling and improvement of woodlands. In connection with this work four permanent experimental plots were laid out for the purpose of studying the rate of growth of the different species and the effects of different methods of silvicultural treatment.

Based upon evidences of a rapid rate of growth as a result of unusually favorable soil conditions, the growth is estimated to be at least one cord of wood per acre per annum. With careful treatment this rate of increment laid on each year should be materially increased. Thinnings made about every

tenth year should easily pay for themselves. It is planned, also, to plant up some open waste areas and part of the tract where the forest cover is not sufficiently dense with white pine, Norway pine and Scotch pine. The city forest is especially well favored in its location and soil conditions for successful forest plantations, and there is every evidence that these species can be brought to merchantable size in from thirty to fifty years, depending upon the kind of product that is desired on the markets. The portion of the tract to be planted consists largely of stony old pastures and fields once covered with apple orchards. Already young seedlings of oak, ash, elm and poplar are appearing in them. It will be more desirable and profitable, however, to plant these areas to white, Scotch or Norway pines on account of their rapid growth and high technical quality of the wood product, particularly with the white and Norway pines. For permanent forest management, it will undoubtedly be more profitable, in the long run, to introduce these rapidly growing conifers rather than to continue with pure hardwoods. Generally speaking, hardwoods are comparatively slow in growth and do not grow so densely in the forest. This consequently means a greater yield with the conifers in a shorter length of time.

In Europe the most splendid example of successful forestry is found in the Sihlwald, the city forest of Zurich, in northeastern Switzerland. This has yielded an annual income per acre of \$7.57. Many municipal forests in Germany have yielded a net income of over \$5.00 per acre annually, after all expenses of administration and protection have been deducted. In comparison with agricultural yields, these figures are not proportionately high. However, when we consider that these forests are occupying soils wholly unsuited and unfit for tillage or more valuable purposes, it is an excellent return on the capital invested. In addition, these forests are serving a real purpose in putting otherwise waste lands to profitable use, in equalizing the stream flow to prevent floods and in providing a cheap and abundant fuel and lumber supply.

THE FIRST ANNUAL REPORT OF THE STATE FORESTER OF MINNESOTA

By PROF. E. G. CHEYNEY

Director of the Forest School, University of Minnesota

We always look forward with interest to the first report of any new undertaking to see what it promises for the future. This is especially true in the case of the establishment of a new department in the State Service. Will it simply assume the titles given it by law and proceed to spend the appropriation allotted to it in the easiest and least disturbing way? Will it become a part of the political machine,—a roosting place for lame ducks—using its appointive power to secure the votes of otherwise useless employees? Or will it really be an efficient organization, grasping the problems presented to it with a broad comprehension of its possibilities, striving for the welfare of the State and seeking to get value received for every penny expended?

That is the most important question and it is answered in the first annual report of the State Forester of Minnesota in no uncertain tone. The whole report rings true to the note of efficiency and service. All the men in the new service are technically trained men or experienced woodsmen holding their positions through efficiency.

A mere glance at the nature of the contents of the report shows the broad conception which the forester has of his duties; fire prevention and fire fighting in all its phases, including the education of its citizens, the disposal of slash, the protection of frontier towns, the building of watch towers, the improvement of trails and portages, the construction of telephone lines, the surveying and mapping of tracts of absolute forest



CLEARING RIGHT OF WAY FOR RAILROAD THROUGH DENSE TIMBER—SLASH BURNED CLEAN UNDER DIRECTION OF RANGER—PULP WOOD WILL BE HAULED OFF.



HARDWOOD FOREST ALONG THE ZUMBRO RIVER, SOUTHERN MINNESOTA.



PRIMEVAL WHITE PINE ON ROCKY NON-AGRICULTURAL SOIL; SHOWING WHAT MAY BE DONE WITH MILLIONS OF ACRES OF SUCH LAND.



THIS WAS A WAGON ROAD BEFORE THE FIRE WENT THROUGH.

land, a study of the extent and distribution of the State's forests, the forest's share in the wealth and welfare of the State, the education of the people at large in the value and benefits of permanent forests.

That outlines a far-reaching and comprehensive program. Whether it can be carried to completion in all its branches in the future depends largely on the people of the State, but it shows that the forester has a true conception of his enormous responsibilities.

But let us vent our criticisms first and be through with it. The worst, practically the really bad, feature of the report is the lack of an index. The reference value of the book is greatly crippled by the lack of this simple contrivance, and its omission seems inexcusable.

Naturally the bulk of the report deals with the fire problem—the first that the forester must meet in any field. The organization consists of the State Forester with the Assistant State Forester working through a force of fifteen permanent District Rangers, who in turn have under them a force of temporary patrolmen. The first object is fire prevention; the second to extinguish existing fires as quickly as possi-

ble. Every effort is directed first toward prevention.

To those familiar with the former attitude of all those interested in forest fires in Minnesota the most remarkable feature of the whole report is the truly wonderful degree to which all these diverse interests have been induced to co-operate with the new Forest Service in the protection of the forests.

The United States Forest Service under the Weeks Law gave \$10,000 for the employment of patrolmen to work under the district rangers on the watersheds of the navigable streams.

The railroad kept reserves to act as patrolmen along their rights of way at the call of the rangers in the danger season, and extended many courtesies to aid the new service.

Some of the timber owners hired patrolmen of their own to work under the rangers.

A large number of organized towns taxed themselves to add their patrolmen to the State force.

The number of patrolmen, and hence the working efficiency of the service, was *more than doubled through co-operation*.

One of the most interesting features brought out, especially interesting be-

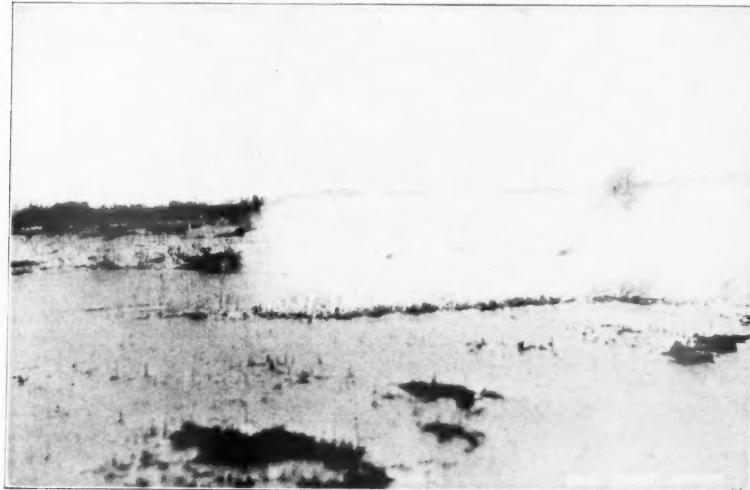


SLASHINGS PROPERLY PILED FOR BURNING.

cause it is a new idea, is the protection of the towns in the forest areas by the construction of firebreaks around them. Such breaks were built only at the instigation and with the co-operation of the State Forest Service. Such a break would have saved any one of the numerous towns which have been wiped out by forest fires in the past

years. The method and cost of construction makes interesting reading.

But even more interesting is the description of the great firebreak in the great burnt-over district devastated by the tremendous fires which destroyed the towns of Baudette and Spooner two years ago. This work, made possible by a contribution from the Red Cross



PEAT BOG FIRES BURN WINTER AS WELL AS SUMMER—THEY MUST BE DUG OUT.



MINNESOTA FOREST SERVICE STEEL TOWER AT
GULL LAKE, ERECTED AUGUST 25, 1911. COST \$36.30.

fund for the aid of the fire sufferers in that district, is the most comprehensive system of firebreaks in the country that have ever been constructed for the protection of such an extensive area. Would not such systems of breaks pay in every forested area?

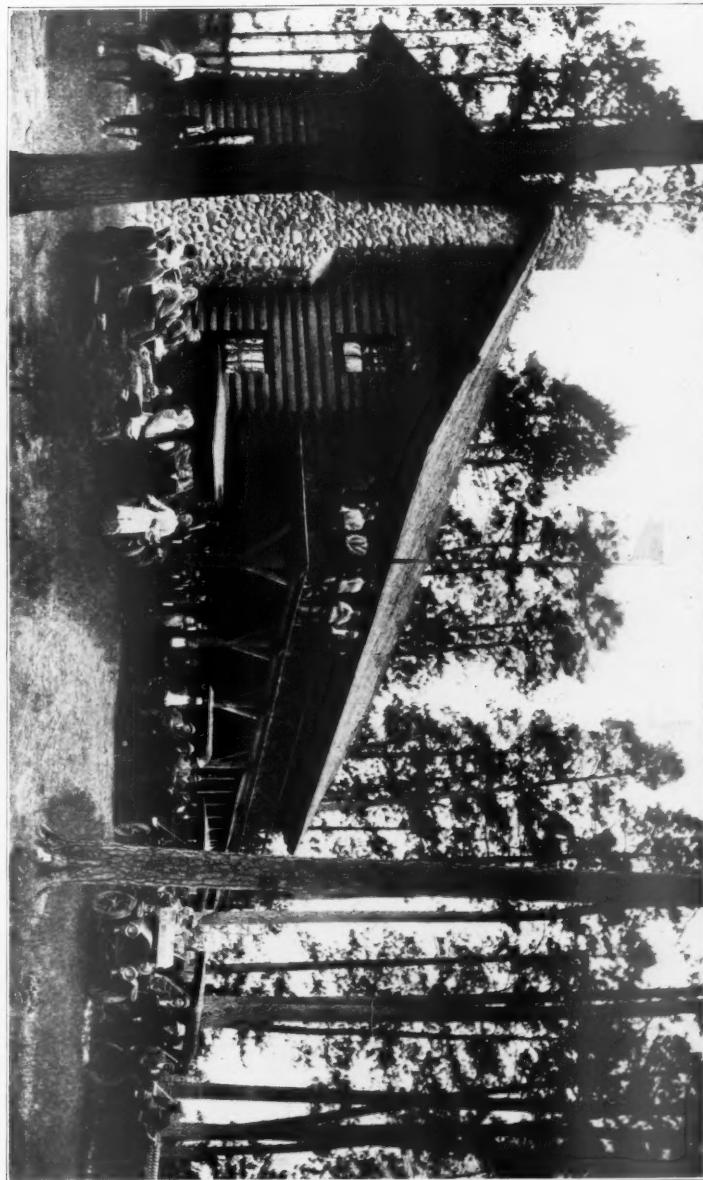
Quite as interesting, and probably the most valuable, data in this report is the detailed description and accurate cost data on the extinction of an extensive bog fire in southeast Polk County, covering an area of 236 acres, by means of a power ditcher and constant control, at a cost of \$1,800. It shows how serious these fires can really be. The moral drawn is that they are very cheaply handled when small and very expensive when allowed to grow. They are usually totally neglected.

Although this work of fire prevention and fire fighting naturally occu-

pies most of the State Forester's time at present and a large proportion of his report, he makes it distinctly understood that he considers it only as the preliminary step which will make his proper work, the scientific management of the State's forests, possible.

Among the interesting facts contained in the report is the statement of Minnesota's forest resources. In spite of the ravages of legitimate lumbering and inexcusable fire loss, she still has the greatest forests of any State east of the Rocky Mountains. They are spread over 28,000,000 acres and contain approximately 75,000,000,000 feet of merchantable timber, with a value to the people of the State equivalent to \$975,000,000. Quite a considerable portion of this is made up of hard woods located in the southern portion of the State.

STATE EDITORIAL ASSOCIATION PAYS VISIT TO DOUGLAS LODGE, IN ITASCA PARK.
Minnesota Forest Service Photo.





WHERE TRAILS GIVE OUT FOREST OFFICERS MUST BUILD RAFTS TO CROSS THE NAMELESS LAKES, NORTHERN COOK COUNTY.

This report as a whole is a very good record of the year's work of the State Forest Service—a virile record of the achievement of things worth while—and contains most valuable information. Its honest striving for the welfare of the State and its pointed calls for the needs of the future should enlist the sympathy and support of every true patriot. It is a true, manly appeal which every one should heed. If the forester can attain the goal he sets up for himself in this first report, the conservation of Minnesota's forest wealth is assured.

There are a number of good photographs illustrating the text very well.

It is to be regretted that more space in the report cannot be given to the "State Forests." That, however, is

not the fault of the report, but due to the lack of "forests." Out of more than two million acres of forested land actually owned by the State, only three pitifully small tracts are under the control of the forester. Millions of acres are wasting away in idleness, either in the possession of the State itself or of private parties. Moreover, large areas of non-agricultural lands are constantly reverting to the State for non-payment of taxes, to be bought up by the speculator, who alone profits in the subsequent sales and re-sales to unsuspecting purchasers. These lands should be producing valuable timber crops. It is to be hoped that the great State of Minnesota will soon turn over some of them to the State Forester, so that they can be cared for in a businesslike man-



MOOSE EATING LILY ROOTS FROM BED OF LAKE NEAR ELY, IN NORTH-EASTERN MINNESOTA.

ner, thus adding, with their productivity, to the wealth of the State.

Among the most interesting paragraphs of the report are the following:

MUNICIPAL FORESTS WOULD PAY.

The value of a woodlot or convenient grove to a farm is not fully realized by a man accustomed to living in timbered country until he has lived on the prairie. There he is dependent upon distant coal mines for his fuel, and as shown by recent railroad tie-ups and car shortages, he is by no means assured of enough coal. Every farm and every town, with a woodlot of sufficient extent, is assured of independence from one form of monopoly.

That prairie dwellers realize the value of a woodlot, as a wind break, and as a fuel supply, is made evident by the fact, that the farmers of the prairie region have planted groves which amount in the aggregate to several hundred thousand acres. This fact should give pause to any farmer, who is rapidly reducing his woodlot, without thought to the future. Although a bounty has been offered as an inducement to plant trees on the prairie, it has amounted to very little to the individual. Even when the labor of plant-

ing is done, he must wait a number of years for his timber to grow to usable size. In the meantime he is dependent upon outside sources for his fuel, and his buildings are exposed to the force of the wind. In how much better circumstances is the man whose farm is situated in the timber, and who has been thoughtful enough to retain a good-sized woodlot? Such a man, if he has kept enough timber, is independent of any rise in fuel prices, and by careful use, this independence may be made permanent.

FOREST INFLUENCE ON FARMERS.

Aside from taxes, the economic importance of this "raw-material," or industrial, side of the forests is more far-reaching in Minnesota than is ordinarily understood. They are *not* of value *only* to the parts of the State where merchantable timber is found. They are of great importance to the farming regions; thus: The great timber industries in woods and town and city require large numbers of draft horses; in fact, are principal buyers in the horse markets. Horses are becoming one of the great sources of profit to Minnesota farmers, more and more attention being devoted to that

branch every year. As the forest industries decrease in extent every year, the market for horses decreases and new markets have to be sought out. With the rapid increase in the cities and elsewhere of the use of automobiles where formerly horses were used, the markets for horses are becoming restricted. The farmer, therefore, should do all in his power to perpetuate that lumbering industry, in the logging end of which, at least, horses cannot be displaced by autos. Horses require feed—oats, corn, bran, hay. Immense quantities of these farm products are purchased every year to feed the logging teams of Minnesota. Furthermore, the camps in the woods, of which there are 1,500 in Minnesota this year, require immense quantities of beans, beef, pork, potatoes, cabbage, onions, and almost every variety of farm products, to feed the great army of woodsmen. Therefore, a decrease in the logging industry directly affects the farmers of Minnesota to a really large extent. The latter, therefore, should wish to see this industry prolonged, and perpetuated, wherever forest can grow most profitably, and they should co-operate in this work of fire prevention.

HOW RECEDING FORESTS HAVE AFFECTED MOISTURE IN THE GROUND.

Formerly timber on the hillsides and bottom lands protected the heavy snow from too rapid melting, permitting the water therefrom to soak into the soil, and so gradually to reach the river. Raging spring floods were then not so common; power projects could depend upon an equable amount of water all summer, until the fall rains renewed the ground supply, and reservoirs were not filled up with mud. Now, however, the snow in the spring, unprotected by forests on these particular watersheds, goes so rapidly that only a very small part of it, with the rains, has time to soak into the ground. Most of the melting snow and the rain water therefore runs off swiftly over the surface, all of it being poured into a stream practically at once. This causes a torrent. Immediately when the snow is gone, the flood subsides through lack

of supply and the stream shrinks to normal stage. The latter is maintained for a time by seepage from what little moisture the ground has retained. This exhausted, the stream becomes a creek, and log drives are "hung up," causing the shutting down of sawmills and lack of employment for many men. Flour mills, run by water power, must keep their head-gates closed days at a time, in order that they may get "head" enough to run for one day. Normal rainfall does not reach the streams, being absorbed and retained by the dry earth. With heavy rains or cloudbursts, the surface runoff not being retarded by forest cover, great floods again occur, with like ensuing conditions, often leaving a trail of death and devastation behind them. The flood of Johnstown, Pa., and more recently that of Austin, Pa., and Black River Falls, Wis., are cases in point. These and similar calamities have repeatedly occurred in the United States and in this State, where no active consideration has been given to retaining forests to regulate water run-off.

WHY EVERYONE SHOULD CO-OPERATE IN PRESERVING THE FORESTS.

The forests of Minnesota are of direct value to every citizen; their loss would be in equal proportion a direct loss to every citizen. Consistently, therefore, there is no person in Minnesota who should not be eager to co-operate with the service in its initial undertaking toward perpetuating those forests, namely, in protecting them from ruin by fire. Nor should the people stop there. They should further co-operate with the service in retaining, upbuilding and scientifically developing the forests so that they may be a permanent source of income to the people. They should co-operate thus because of the great and undeniable economic value of the forests to the people as a whole. True, this may be said of almost any great industry, such as farming. But farming is on the increase. Scientific methods of farming have been and are being rapidly evolved and generally adopted. So widespread is the interest in this upward movement, so much private and public money

is being devoted to it, that farming is on a firmer footing in this country than ever before. The same may be said of other industries. The reverse has been true of the forests. This should not be so. There is as great need for practicing scientific forestry as there is for practicing scientific farming on the agricultural lands.

For years, the forests of Minnesota, so long regarded as an inexhaustible resource, have been diminishing in extent. This has been going on with no attempt until recent years to check it; has been going on for years in face of the fact that the *true* economic value of the forests is second only in importance to that of the farms. The downward movement is to be observed not only in the decrease in annual income directly from the forests, but in its harmful effect upon so many industries which touch upon them. Fur-

thermore, it is apparent in the increased cost of forest products to the consumer. The time is at hand when that downward movement must be stopped, or the gradual loss will soon become a permanent state calamity. To this end, therefore, not only should the lumber companies, railroads, settlers and others, observe the laws for forest preservation, and give organized assistance in that work, but *every one* should, for his own benefit, co-operate to the utmost extent that he may in the work of preserving and perpetuating the forests. Without the combined individual and organized aid of every one, the work of the service for the forest welfare must, proportionately as that aid is lacking, be hindered and lack in efficiency. Only with that aid can the forests be brought to the point where they will be productive of the *greatest* benefit to the people.



VIEW FROM ONE OF THE MOUNTAIN LAKES OF COOK COUNTY, MINN.

BREEDING FUR-BEARING ANIMALS

The Fur News Publishing Company of 71 West 23rd St., New York, has issued a very interesting book entitled "Fur Farming for Profit." It is designed as a practical text book on breeding fur-bearing animals either as a distinct industry, or in connection with specialized or general farming and treats of the subject in twenty-nine well-written chapters which are profusely illustrated.

A NEW BOOK BY DR. C. A. SCHENCK

The third and revised edition of "The Art of the Second Growth or American Sylviculture" by C. A. Schenck, Ph. D., director of the Biltmore Forest School, is just out. It was originally published in 1905, and is now in its present form enlarged and brought up to date. It will be found an excellent text book for students and will be also of much value to lumbermen and foresters.

EMPIRE STATE ASSOCIATION MEETING

No more successful meeting has ever been held by the Empire State Forest Products Association than the one at Watertown, N. Y., on November 14, which was attended by about a hundred men interested in forest conservation and water power preservation. They heard many excellent addresses, were delightfully entertained and derived much benefit from the meeting, which resulted in decisions for closer co-operation between the Association, the American Forestry Association, the Camp Fire Club of America and the Society for the Preservation of the Adirondacks. The tenor of the addresses showed that there was keen realization of the fact that these organizations, working together, could accomplish much that is desired in forest and water conservation in New York State.

President Frank L. Moore in his opening address said:

"There has been in the past too much theory and too little practical knowledge of the vast forest areas that are the property of the people. This property, which has been purchased by levying taxes, of which you and I have paid our proportion is of inestimable value, but under the constitution of the state we are prevented from deriving any revenue from a matured and decaying crop. That same constitution says that we must not use any of the people's property to create storage reservoirs for the benefit of the people of the State. I say this advisedly because wherever power can be created, manufacturing industries spring up, population of towns increases, and the ever alert assessor places your property on the assessment roll of the State and then taxes from which death alone can separate you. If you and I managed our business this way we would be classed unsuccessful.

"It is evident that the people, the real owners of the vast estate, had rather pay a direct tax and allow a maturing



FRANK L. MOORE, OF WATERTOWN, N. Y., RE-ELECTED FOR THE THIRD TERM AS PRESIDENT OF THE EMPIRE STATE FOREST PRODUCTS ASSOCIATION.

and ripe crop to rot, than to say that we will amend the constitution, pick out someone to manage this property and put it upon a revenue-producing and self-sustaining basis. When this is done, a direct tax will be unheard of.

"Another phase of our forest management that is causing serious thought by those directly responsible is: shall we continue to make annual appropriations for further purposes under our present constitution, or shall a way be found where this money may be expended for the perpetuation of our forests and at the same time produce a

revenue to the State? I do not believe in investments that will not produce some return. The people of the State should arise en masse and demand an income from their investment which should be applied to lessen their taxes. Until our constitution can be amended we should ask the Legislature to pass a law permitting the people to acquire larger interests in forest lands. I believe a law could be drawn that would be constitutional and that would permit the State to reforest private lands under the following conditions:

"An individual or corporation to make application to the conservation department to reforest certain lands, the growing crop to be free from taxation. The trees, when matured, to be cut under State supervision and a stumpage paid to the State, the stumpage to be a lien against growing crop. The amount of stumpage to be agreed upon by the owners and the commission in charge, the trees to be considered matured when they reach a diameter of 12 inches.

"I believe a law framed as the above would promote continuous reforesting along our rivers and streams.

"I believe also that the constitution should be so amended as to permit the cutting of matured trees upon State lands under control of the State department, and the proceeds of the sale of the stumpage be applied to further purchases or to help defray the expenses of government.

"The Bird amendment so-called was the result of initiative taken by your officers, and to-day we can point with pride to the loyal support it has from all associations interested in permanent growth.

"I believe in enlarging forest fire service. Reforestation will accomplish but little with inadequate fire protection."

Prof. Nelson C. Brown, of the New York State College of Forestry at Syracuse, read an excellent paper on the development of forest utilization in this country and said he believed the practice of forestry in this country in the future would be devoted as much to complete utilization of the timber resources as to the growing of timber.

He advocated a more liberal policy in the management of the State-owned timber land.

An address on the work of the American Forestry Association, and the important investigative work to be undertaken next year in co-operation with the lumbermen and timberland owners, State foresters and fire protective associations, was given by P. S. Ridsdale, the executive secretary; A. S. Houghton, of the Camp Fire Club of America, spoke on the growth of forest conservation in New York State and the increasing interest of the lumbermen in the work. Dr. Edward H. Hall, of New York City, the secretary of the Society for the Protection of the Adirondacks, urged, in a witty and impressive talk, an open discussion of any differences of opinion between his association and other organization regarding differences in policy in efforts to preserve the Adirondacks.

W. L. Sykes, of Buffalo, who had driven forty miles through the rain and over muddy roads in an automobile from Cranberry Lake to get to the meeting, made an interesting report for the forestry committee, of which he is chairman, and this was followed by a general discussion of conditions in the forests. Mr. Sykes urged that the State adopt a more liberal policy in permitting private owners to build roads across State lands in order to market their timber.

Prof. Samuel N. Spring, of the forestry department of Cornell, who is a member of the State board, which is investigating the question of forest taxation, lucidly described different methods of taxation reforms which have been proposed and in which those present were greatly interested. This talk, too, was followed by a general discussion, during which Prof. Spring answered a number of questions about various features of forest taxation laws.

At the banquet in the evening there were addresses by M. H. Hoover, of the State Conservation Commission; State Senator T. Harvey Ferris, of Utica; James L. Hutchins, of Rochester, and an illustrated talk on State forestry by Dean Hugh P. Baker, of

the New York State College of Forestry.

The resolutions adopted at the meeting denounced the Canadian reciprocity treaty, approved the Jones bill relating to the taxation of forest lands, and went on record as favoring the placing of fire wardens under the civil service laws.

The first of the resolutions follows:

Resolved, That the Empire State Forest Products Association reaffirms its desire to confer with the Camp Fire Association, the Association for the Protection of the Adirondacks, the New York Board of Trade and Transportation and any other association or individuals for the purpose of harmonizing the several interests in the Adirondacks; and we hereby pledge our cooperation in support of any reasonable improvement in establishing rational scientific forest management, with due consideration to vested rights, to the end that the forests in the State of New York may be operated and maintained for the greatest good to the greatest number.

The association, by resolution, commends the Burd-Merritt amendment for an adequate system of water storage in the Adirondacks to regulate the flow of streams.

The following resolution was adopted on the State College of Forestry:

Resolved, That we commend the efficient educational work of the New York State College of Forestry in training professional foresters and practical woodsmen in its Ranger School, and the study which the col-

lege is making of the wood-using industries of the State in co-operation with the national forest service, to the end that the proper use of our forest lands will be more generally and better known. It commends especially the State-wide work which the college is doing in taking forestry to the high schools, granges and other organizations as well as its work along experimental lines.

Frank L. Moore was re-elected president for a third term. F. J. Jones, of Buffalo, was chosen as vice-president, and H. J. Cadwell was re-elected secretary and treasurer. The following committees were named:

Board of Directors—Rufus Sisson, Potsdam, chairman; G. H. P. Gould, Lyon Falls; Charles F. Moore, New York; Ferris Meigs, New York; E. K. Harroun, Watertown; E. J. Jones, Buffalo; Maurice Hoops, Glens Falls.

Legislative—Ferris Meigs, New York; George Ostrander, Glens Falls; George C. Sherman, Watertown; Charles Moore, New York; E. J. Jones, Buffalo; V. K. Kellogg, Watertown; Charles Sisson, Potsdam, and J. G. Hoffman.

Transportation—John D. White, Utica, chairman; J. N. McDonald, Utica; Charles Griffin, New York; Fred Cleveland, Albany, and C. H. Tiffany, New York.

Forestry—W. L. Sykes, Buffalo, chairman; George A. McCoy, Tupper Lake; R. W. Higby, New York; F. P. Wilder, Watertown; Isaac Kenwell and Prof. Nelson C. Brown, Syracuse.

A REPORT ON FOREST FIRE LOSSES

Forest resources having a valuation of more than \$25,000,000 are lost annually through fire, according to Fred G. Plummer, geographer of the United States Forest Service. Besides this great loss of timber, there has been an average loss of seventy human lives a year in the forest fires of the last half century.

In a study which he has just completed, Mr. Plummer has drawn upon all the forest fire statistics known to exist, and has worked out for the government a system of standardized reports which will give to future generations data of the causes, extent and effects of forest fires which will be far more complete and accurate than the records which have been kept heretofore. Mr. Plummer makes a point of the fact that there are enormous forest fire losses from the destruction of young tree growth, deterioration of the soil, damage to watercourses, interruption of business and the depreciation of property which are important, but which cannot be estimated accurately.



A RANGER TRACING LINES IN WINTER UNDER DIFFICULTIES, MINNESOTA NATIONAL FOREST.

THE FOREST RANGER

A. G. JACKSON

Who is this forest ranger man we hear so much about?
What does he do, how live his life, where is his daily route?

The forest ranger is the man who guards the nation's wood,
Performs his Uncle Sam's odd jobs and does his duty good.

His life is lived away from town, and often quite alone
He rides the trail or climbs the ridge wherever trees are grown.

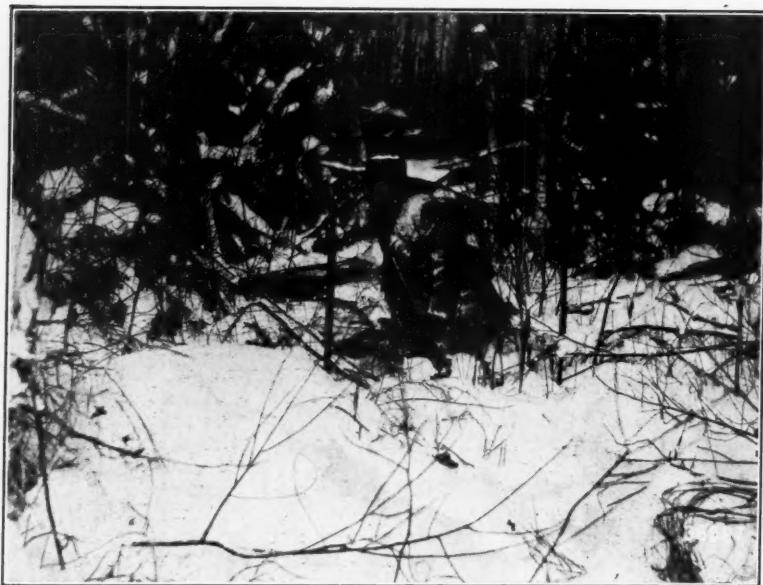
He gathers seed in autumn from the sturdy forest trees,
And scatters them where barrenness exists by fire's decrees.

The snow-clad peaks, the mountain lakes, the river's rushing brim,
The cabin and the jungle dark alike are known to him.

By their first names he calls the trees and counts each one his friend.
He knows the furtive wood folk too, and how their lives they spend.

He finds the way and builds the trail where few have been before;
And to a beauty spot long closed he leaves an open door.

In August's heat he makes his beat from lowlands to the higher,
And oftentimes mid deep smoke and flames he battles forest fire.



A RANGER TRACING LINES IN WINTER UNDER DIFFICULTIES, MINNESOTA NATIONAL FOREST.

With compass, aneroid and book he makes the forest maps,
And carries quilt and frypan with his surveying traps.

Each day you'll find him on the job in charge of timber sales,
And every log or bolt that comes with diligence he scales.

And nursery rhymes he croons at night to baby firs and spruce
That soon will grow to take the place of old trees put to use.

The ranger's works are legion: he cooks, he packs, he rides.
He's carpenter and mason, he paints and drafts besides.

He's sometimes building cabins and installing telephones,
And sometimes cruising timber, and sometimes hauling stones.

For any work that's needed on his unc'les forest land,
The ranger's ever ready with a willing skilful hand.

On what he sees, and what he does, wherever he resorts,
He must embody all the facts in various reports.

The forest ranger sometimes wears a Service uniform;
More often khaki overalls keep his strong figure warm.

The ranger likes his T-bone steaks and strawberries and cream;
His frequent food is "mulligan" beside some mountain stream.

The forest ranger sometimes works but eight hours for a day,
And days when he puts in sixteen, they don't increase his pay.

The forest ranger on his trips as he goes down or up,
Oft takes along for company a well bred Airedale pup.

The forest ranger likes his job: he has no time to knock,
And when at length promotion comes it strikes him with a shock.

Thus the ranger's life is lived with nature wild and free,
His soul uncaged by city walls—His is the life for me.

Berlin, Wash., Oct. 27, 1911.



A RANGER PILING AND BURNING BRUSH IN THE WINTER.

THE FUTURE SUPPLY OF HICKORY

America must soon begin to plant hickory or this country will face a serious shortage in one of its most useful hard woods, according to Raphael Zon, expert in charge of the office of silvics in the United States Forest Service.

America is now supplying the hickory which is used over the entire world. A fact not known to the average person is that hickory is distinctively an American tree, growing only in the eastern part of the United States. It is usually scattered among other hard woods, and up until the present time sufficient quantities have been found to supply the demand at reasonable prices, but experts in the United States Forest Service now realize that the timber must be planted if the future supply is to be guaranteed.

CONSERVATION REALIZED IN MASSACHUSETTS

BY HARRIS A. REYNOLDS

Secretary, Massachusetts Forestry Association

MASSACHUSETTS is not blessed with coal or copper mines, nor oil and gas wells. Consequently, it has none of those natural resources to conserve. It has a problem, however—the preservation of its forests, and the reclamation of its waste lands. It may surprise those who are not familiar with Massachusetts to learn that as one of the States first settled, it is still nearly one-fifth wild or waste land. About 1,000,000 acres of the State are covered with scrub growth, or deserted farms where the soil is either too wet or too rocky to produce profitably without the application of scientific farming methods. On the other hand, this land is ideal for the growth of white pine, which thrives like a weed all over the State. It is evident that permitting this land to lie idle is a great economic waste to the State and community at large amounting to millions of dollars annually.

Conservation was practiced in this State, however, long before the Conservation Commission produced its voluminous report. In 1898, the Massachusetts Forestry Association was organized and incorporated. It is a private organization and consisted at that time of only a few far-sighted citizens who saw the need of preserving our shade trees and protecting our forests. Until the past year, its energy was directed mainly toward procuring forest legislation. The Tree Warden Law was passed in 1899, requiring every town to select a citizen whose duty it is to protect the trees and see that the shade tree laws are obeyed. To create the office of State Forester was more difficult. It took several years to convince the Legislature that such a State Department was needed. This was done only after the Association had employed a forester and gave his services gratis to the people of the

State for one year. The following year the office of State Forester was created and the State Forestry Department organized. This department last year spent \$355,000, including the Gypsy Moth Funds, which were \$315,000. In bringing the Weeks Bill into life as an Act of Congress, this association took a leading part. The purpose of this act is to create national forests on the headwaters of navigable streams, especially in the White and the Southern Appalachian Mountains, the forests to be so located as to protect the watersheds against erosion and to regulate the flow of the streams.

Last year, largely through the instrumentality of this association, the State Forest Fire Warden Act was passed, creating the office of State Forest Fire Warden under the direction of the State Forester. Mr. M. C. Hutchins, formerly of the New York State Fire Service, took charge of this work, and for the past year he has been perfecting our fire protection system. Lookout stations have been established on the high points in the State, from which men who are stationed there during the dry seasons can observe every part of the State. These men are connected by telephone with the fire wardens in the respective towns surrounding them, and immediate alarm is given at the first sign of smoke. The damage done by forest fires this year has been only about one-twentieth of that of the previous year, before the system was installed, and the system itself is not yet perfected. This assures owners of woodlands that their timber will be protected, and reforestation is beginning in earnest.

The present tax system in this State is not favorable to woodland owners and this year a resolution to amend the State constitution was passed whereby the Legislature is given the right to

revise the system of taxing wild and forest land.

Now that the fire hazard and taxation difficulties are coming under control, the great problem of afforesting the fifth of the State is being solved in this way by the association. Branches of the Association are being formed in the towns and cities of the State. These local organizations serve as village improvement societies, except that their energies are devoted almost exclusively to forestry and shade-tree work. The branches are independent locally, having their own by-laws, which conform with the by-laws of the main association. Their membership consists only of members of the Massachusetts Forestry Association. Their secretaries send copies of the minutes of all meetings of the branches and their executive committees to the main office, where records of all branches are kept. In this way, the main association is in direct touch with the work of the branches and by constant vigilance, they are kept from becoming delinquent. Local improvement is brought about in this way, and, consequently, the whole State is benefited. The organization as a whole, becomes a body of workers, and local public spirit prompts the members to help in this organized effort to improve our forest and shade-tree conditions.

Unlike the average village improvement society which starts from a local impetus, these branch associations are not permitted to die out after one or two important objects have been accomplished. When a branch is organized it is at once set to work. A committee is appointed to draw up by-laws for the guidance of the branch. Another committee is appointed to study the local problems and present resolutions at the next meeting as to what the branch shall work for in the future. A date for that meeting is usually set before the organization meeting adjourns. This starts the branch to work, and the resolutions adopted at the second meeting are recorded with the main association, which keeps bringing these resolutions up before the branch continually, and urging it to carry them out. In that way, a branch is never totally idle, and

the very fact that it has something to do will keep it alive and self-respecting. A retired or moribund organization of this sort is worse than a dead one.

This work is being pushed as rapidly as funds will permit. The State has been divided into five districts and an assistant secretary is placed in each district, whose duty it is to do the preliminary work of organizing these branches by arousing local interest and by giving advice in forestry matters. We aim to keep these positions filled with trained foresters who do much good by advising individuals concerning their forests and shade-trees. These men are in line for positions as city foresters, which positions we are creating through the means of these branch associations. In turn, the city foresters are educating the people to the advantages of afforesting the watersheds from which the drinking water of the town or city is obtained. In a few instances this work has led to the consideration of having town forests, something on the order of the German Municipal Forests. This is the point we were coming to. Just as soon as the benefits of having such a forest is recognized, our wild and waste land will soon be put under cultivation. Our people are fast awakening to this fact through the educational influence of the Branch Association work and we feel safe in predicting that within a very few years most of these million acres of wild and waste land will be planted to trees. When each town plants a few acres yearly, and scores of individuals take up the work as they have already begun to do, in addition to what the State Department reforests annually, we shall soon change the face of Massachusetts.

Already these Branch Associations have done excellent work for their own communities. The Fitchburg Branch alone was the means of procuring over \$4,200 extra appropriations this year for forest, shade-trees, and park and playground work. Some have brought suit against offenders of the shade-tree laws. Plans have been laid by all for important future work and on the whole, the start made by these Branch Associations has been very satisfactory.

The idea is spreading rapidly and hundreds of people are becoming members of the Association in order to forward the good movement now under way. The membership of the Association has been more than doubled this year by

this means and people who have never heard of the organization are now among its enthusiastic workers. We believe that we are on the right track, and our theories of conservation are fast becoming realities.

WESTERN FORESTRY AND CONSERVATION ASSOCIATION MEETING

AN excellent program has been arranged for the annual forest fire conference of the Western Forestry and Conservation Association at Seattle, Wash., on Dec. 2 and 3, which will be attended, as delegates of the American Forestry Association, by director E. A. Sterling and executive secretary P. S. Ridsdale.

Besides members of the forest protective organizations of the Pacific Coast there will also be present representatives of the State, Federal and British Columbia Forest Agencies.

Following the opening address by President A. L. Flewelling and the report of Secretary-Treasurer G. M. Cornwall, Forester E. T. Allen will report on the work of the Association in regard to fire effort and losses, and there will be short reviews of 1912 experiences of private owners, by W. E. Wells, vice president of the Northern Montana Forestry Association; A. W. Laird, president Northern Idaho Forestry Association; Geo. S. Long, president Washington Forest Fire Association; Charles S. Briggs, vice president of the Oregon Fire Association; and R. D. Swales, manager of the Redwood Fire and Protective Associations. These will be followed by reviews of State and Government experiences by United States District foresters F. A. Silcox, for Montana and Idaho; Coert DuBois for California; state foresters C. W. Jungberg, for Montana; J. R. Welty,

for Washington; F. A. Elliott, for Oregon, and Chief Forester H. R. McMillan, for British Columbia.

In the afternoon there will be discussions on safeguarding logging operations by J. J. Donovan and Douglas Rodman; on slash disposal, by F. A. Elliott and J. L. Bridge; on railroad co-operation, by M. J. Buckley, of the O. W. R. R. & N. Co., and T. J. Humbird, president of the Clearwater Fire Protective Association. A banquet by the Seattle Lumbermen will be given in the evening.

On Tuesday there will be addresses on trail and telephone building, by W. E. Herring, Engineer of the U. S. Forest Service and Carl Bush, of the Western Electric Co.; on possibilities of wireless in fire work, by R. H. Sawler, of the Marconi Co.; on men, tools and supplies in fire fighting, by Coert DuBois and F. J. Davies; on fire fighting and patrol, by D. P. Simons, of the California Forest Protective Association, and R. E. Benedict, of the British Columbia Forest Service; on forest legislation, by C. S. Chapman, of the Oregon Forest Fire Association, and E. G. Ames, of the Washington Forest Fire Association, and on publicity work, by F. C. Knapp, president of the Portland Chamber of Commerce.

These will be followed by addresses by Geo. S. Long and Prof. C. H. Shattuck, the latter of the University of Idaho.

MR. OLMFSTED WITHDRAWS FROM FIRM

Fisher, Bryant & Olmsted, consulting foresters, of 141 Milk Street, Boston, Mass., announce that Mr. Frederick Erskine Olmsted has withdrawn from the firm and the business has been incorporated and will be continued under the corporate name of Fisher & Bryant, Inc.

Mr. Olmsted leaves to practice consulting forestry independently and along special lines, but will maintain close relations with the new corporation. His address will be 21 Lime Street, Boston, Mass.

NATIONAL FOREST RESERVE IN WEST VIRGINIA

By J. A. VIQUESNEY,
Forest, Game and Fish Warden.

ON account of the peculiar location of the State of West Virginia, perhaps no State in the Union needs a larger forest reserve, but no action has yet been taken by the State to purchase or control any forest lands, neither has any law been passed controlling the cutting of timber so that our cut-over lands may again be reforested.

This is a deplorable condition, but nevertheless true, and the effects may be seen by traveling over many railroads of the State and looking at the cut-over areas, that are almost depleted of vegetation and practically useless for all time to come.

However, the National Government, having made a careful study of these conditions and realizing, especially, the great danger that we are facing on account of the drying up of the fountain heads of our great commercial streams, sometime ago, under the Weeks Law, made an appropriation for the purpose of making investigations looking to the purchase of large areas of wooded lands in several States.

Among the States that have properly qualified or passed laws, allowing the United States Government to purchase land for the purpose mentioned, are Maine, New Hampshire, Maryland, Virginia, West Virginia, North Carolina, Tennessee, South Carolina and Georgia, and naming the counties in West Virginia in which this land will be purchased as parts of Pendleton, Hardy, Randolph and Pocahontas.

For many years the United States Congress has been endeavoring to have a law enacted and appropriations made for the purpose of purchasing sufficient forest reserves to insure an even supply of water to our navigable rivers, were only successful in having such bill become a law until a recent session of Congress.

Anticipating the passage of such a law by the United States Government, the West Virginia Legislature of 1909, in conformity with the suggestions of Governor Dawson, in his biennial message, passed a bill which gives the United States Government the right to acquire such property. This bill comprises Chapter 61 of the Acts of 1909, and is as follows:

"An act to empower the United States of America to acquire lands in West Virginia, by condemnation or otherwise, for a national forest reserve, and granting to the United States all rights necessary for the proper control and regulation of such reserve.

Section 1. That the consent of the Legislature of West Virginia be and is hereby given to the acquisition by the United States, by purchase or by condemnation with adequate compensation of such lands in West Virginia as in the opinion of the Federal Government may be needed for the establishment of such a national forest reserve in that region; provided, that the State of West Virginia shall retain a concurrent jurisdiction with the United States in and over such lands so far that civil process in all cases, and such criminal process as may issue under the authority of the State of West Virginia against any person charged with the commission of any crime without or within said jurisdiction may be executed thereon in like manner as if this act had not been passed.

Sec. 2. The power is hereby conferred upon Congress to pass such laws as it may deem necessary to the acquisition, as hereinbefore provided, for incorporation in said national forest reserve of such forest-covered lands in West Virginia as in the opinion of the Federal Government may be needed for this purpose.

Sec. 3. The power is hereby con-

ferred upon Congress to pass such laws and to make or provide for the making of such rules and regulations, of both civil and criminal nature, and provide punishment therefor, as in its judgment may be necessary for the management, protection and control of such lands as may be from time to time acquired by the United States under the provisions of this act."

The question of forests with their manifold benefits to the continued existence of mankind on earth, would fill volumes and cannot be properly discussed in an article of this character, but the benefits to be derived by our State and Nation by establishing a national forest reserve in the territory mentioned is so apparent that it deserves at least some passing comment.

The basic idea of the Federal Government in acquiring these reserves is to regulate the flow of water in the streams originating in these forest areas, which eventually form the navigable streams of our nation. But the control of such forests by the Federal Government would be of benefit in other matters, such as helping protect our forests from fire; maintaining an even flow of our streams, thus making them better for fish culture and furnishing better protection to our game and birds. While these lands will not be game preserves in a strict sense, yet with the protection from fire and under the patrol and care of the United States Government, it will, at least, make a refuge where game and birds can be protected from the pot hunter. The public will have the right to hunt and fish upon these lands, in accordance with the State laws, where they are located.

One has to but take a glance at the map of the portion of the United States which comprises this adventure, to be impressed with the wisdom of the government in acquiring same. Along these two great ranges of mountains the water sheds are formed that control the supply of water for all the Eastern part of the United States.

The position that West Virginia occupies in this undertaking is unique and more important than that of any other State affected, for the reason that two

of the greatest navigable streams in the United States take their rise in the Appalachian Mountain ranges, in the counties that are covered by this proposition.

While there are 282 navigable streams in the United States, it is shown by statistics that two West Virginia rivers, the Monongahela and Ohio, carry almost 25,000,000 tons of freight each year, or about one-fifth of the whole tonnage carried on navigable streams in the United States. For this reason, the protection of forests in West Virginia is of immense importance to the nation's inland commerce, for without this protection the time must come when these great navigable streams of commerce will fail on account of the drying up of the fountain heads of these streams.

The Government's aid in creating forest reserves in West Virginia will mean even more to us than maintaining a water supply for commercial purposes, and should not only be encouraged by State aid in every way possible, but corporations, firms and individuals should be reasonable in quoting prices on land which they have for sale in these designated regions. It is the purpose of the commission to obtain lands that can be purchased for a low or reasonable price, and not pay any fancy price for land for this purpose. There are thousands of acres of such lands in the mountain ranges mentioned that are scarcely valuable enough to justify the owners in paying taxes on same, which can be used to great advantage in this work and should be turned over to the Federal Government at a nominal price.

By establishing these forest reserves an even supply of water will be maintained for all time, and the great freshets and floods that have been increasing in the last few years will be held in check; the soil that is now held in place by these forest tracts will be retained and used in reforesting the cut-over areas, and the care that is taken of the tracts of the Federal Government will inspire others to take similar care of their forests, and in numerous ways the State will be benefited.

Thousands of acres of land in West

Virginia that have been cleared would be worth more in its primitive condition, and every available acre of forest land in the State, unless it is very valuable for agricultural purposes, should be retained as a forest reserve.

The United States forest service officials are doing a great work in educating the people to see the great good to be accomplished by protecting the forests. This is now regarded as one of the most helpful branches of the Department of Agriculture. This department undertakes the study and so-

lution of forestry problems, that cannot be handled by the States and individuals, and by sending out literature is creating an influence among all classes that will aid in protecting and conserving these great gifts of nature.

Many States have spent large sums of money to build up their forests that have been recklessly and needlessly destroyed. We have in West Virginia several millions of acres of forest lands, and if properly cared for, either by State or Government's aid, it will be of untold benefit to future generations.

DANGER TO THE NATIONAL FOREST POLICY

BY HENRY S. GRAVES

Chief Forester

HERE has been during the past two or three years a steadily growing movement to turn over the National Forests to the individual States. During the past session of Congress a rider to the Agricultural Appropriation Bill was offered in the Senate providing for the grant of the National Forests to the several States, together with all other public lands, including "all coal, mineral, timber, grazing, agricultural and other lands, and all water and power rights and claims, and all rights upon lands of any character whatsoever." While the amendment was ruled out on a point of order, it received a surprisingly large amount of support.

The proposition so far as the National Forests are concerned is to turn over to the individual States property owned by the Nation covering a net area of over 160 million acres. This property has an actual measurable value of at least two billion dollars, while from the standpoint of its indirect value to the public no estimate on a money basis could possibly be made. These are public resources which should be handled in the interests of the public. Moreover, the problems involved are such that they should definitely remain in the hands of the National rather than be turned over to the State Gov-

ernments. The property belongs to the Nation as a whole, and every citizen has an interest in it. The Government has already made enormous grants to the individual States, but always to further specific objects of National importance. There should not be a moment's consideration of the proposal to turn the Forests over to the States unless it can be clearly shown that the interests both of the States and of the Nation are consistent with such action. In the case of the National Forests, public interests both of the Nation and of the States require their continued retention and management by the National Government.

The scope of this article does not permit a full discussion of this problem. It must suffice to mention a few cogent reasons for Government ownership.

1. The property is now owned by the Nation, and should be administered from the standpoint of National as well as of local needs.

2. The problem of protection from fire and of timber production on the National Forests is one of National scope and can be properly handled only by the Government; its solution is a National duty.

3. The problem on water control is no less a National duty. Nearly all of the National Forests lie on head-

waters of navigable rivers or interstate streams. The Government is now purchasing lands in the East on headwaters of navigable rivers because of the disastrous results to the public which are following abuse under private ownership. It certainly should not part with title to the same class of lands which it now owns in the West. Every interstate stream presents problems which can be properly handled only through the Federal Government. The Government can not permit the citizens of one State to be damaged by the action or failure to act of citizens of another State. It is of vital importance for this reason alone that property at the headwaters of interstate streams be retained under Government administration.

4. Not only are the interests of the individual States and communities now fully protected, but in many ways far more is being done for local communities than would be possible under State ownership. In the long run, as the timber and other resources are brought into use with improving markets, the States will receive from the 25 per cent of the gross receipts now allowed them and the additional 10 per cent appropriated for road improvements a larger amount than would come in from local taxes under private ownership.

5. The States are not as well prepared, financially or otherwise, to handle the National Forests as is the Federal Government. If the Forests were owned by the States and handled in the real interests of the public, there would be substantially the same system of administration as today, at a greater aggregate cost for supervision by a considerable number of independent State staffs of technical men. The financial burden would be far too great for the individual States to assume. The result would be either poor administration and lack of protection, or a sacrifice of the public interests in order to secure revenue to meet the financial needs.

6. The successful application of forestry demands a stable administrative policy for long periods. This can be secured far better under National than under State control.

7. A much higher standard of constructive and technical efficiency is possible under National than under State administration. The value of the Forests to the public depends directly on the skill with which scientific knowledge is applied to the task of developing their highest productiveness. Both in ability to carry on the research work required for practical ends and in ability to command professional services of the first order the Government possesses a striking advantage.

8. As largely undeveloped property the Forests need heavy investments of capital for their improvement. Their full productiveness can be secured in no other way. The Government is now investing yearly in the Forests a considerable part of the appropriation made for them. Even if the States did not seek to make them sources of immediate revenue, at whatever sacrifice of their future possibilities, they would be reluctant to expend much for their development.

9. The States both lack the civil service system and standards of the National Government and are exposed to greater danger of being swayed by private interests. In the hands of spoils-men demoralization would quickly succeed the present high standards of the Forest Service, while the intimate relation of the Forests to the welfare of greater numbers of individuals would tend to make their administrative control a highly coveted political prize. At the same time the value of their resources would certainly arouse a cupidity which would be exceedingly difficult to control. Scandalous maladministration might easily follow. The Federal Government is better watched, farther removed from local influence, more stable, and better equipped with a non-political system and machinery.

The underlying purpose of the proposed transfer of the National Forests to the States is really not to substitute State for Federal control but rather to substitute individual for public control. Its most earnest advocates are the very interests which wish to secure such control. The object of the whole States Rights movement as it affects the National Forests is to transfer to private

owners for speculative or monopolistic purposes public resources of enormous value. Retention of these resources under public ownership is needed to protect the people from abuses which are every day being demonstrated on lands over which the public has already lost control. The proposition is one which the people as a whole would repudiate in an instant if they understood what is proposed. The only danger lies

in the fact that some legislation adverse to the National Forest system may be passed when the public as a whole is ignorant that it is planned or does not understand the meaning. Vigilance in the defense of its interests and intelligence in the perception of the true character of masked attacks upon those interests are of fundamental necessity if the public is to protect itself.

LACK OF CHRISTMAS TREES

PRICES of Christmas trees in New York, Philadelphia, Baltimore, Washington and most of the cities and towns of the eastern and middle states will likely be higher this year than ever before owing to the great reduction in the regular supply due to a quarantine order of the Department of Agriculture. This went into effect on November 25 and prevents Christmas trees and greens from nearly all of New England being shipped out of the quarantine zone. This is due to the prevalence of the gypsy moth and the brown tail moth in New England and the fear of the Forest Service that they might be spread throughout the east by the indiscriminate shipping of conifers such as spruce, fir, hemlock, pine juniper and arbor vitae used generally, as they are, for Christmas trees and greens.

The gypsy moth is prevalent in Maine, New Hampshire, Massachusetts and Rhode Island, while the brown tail moth is in Maine, Vermont, New Hampshire, Massachusetts, Connecticut and Rhode Island.

The quarantine also applies to all forest plant products in the specified area. Of course, if officials of the Department of Agriculture examine proposed shipments of Christmas trees, greens or other forest products and pronounce them free from either of the destructive moths the shipments outside the quarantined area may be made, but there is little prospect that the thousands of dealers in Christmas trees will take the chances of buying these trees for shipment out of New England,

when the danger of the trees being condemned is so great.

For many years the shipment of Christmas trees and greens from New England has been a profitable industry and most of the supply to the larger cities of the middle states came from that section. Consequently the quarantine will greatly reduce the supply, and prices will naturally advance considerably.

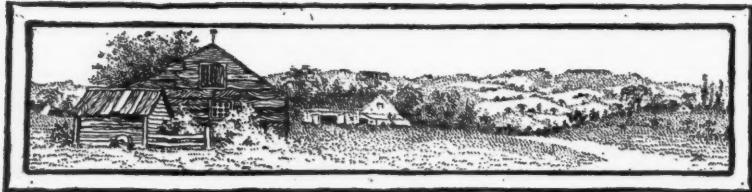
The Forest Service upholds the Christmas tree custom, but recognizes at the same time, that the indiscriminate cutting of evergreens to supply the holiday trade has produced a bad effect upon many stands of merchantable kinds of trees in different sections of the country. Waste and destruction usually result when woodlands are not under a proper system of forest management. Foresters say that it is not by denying ourselves the wholesome pleasure of having a bit of nature in the home at Christmas that the problem of conserving the forests will be solved, but by learning how to use the forests wisely and properly. The ravages through forest fires must be checked, the many avenues of waste of timber in its travel from the woods to the mill and thence to the market must be closed, and almost numberless important problems demand attention before the Christmas tree.

Germany is conceded to have the highest developed system of forest management of any country, yet its per capita use of Christmas trees is greatest. The cutting of small trees for Christmas is not there considered in the

least as a menace to the forest, but, on the contrary, as a means of improving the forest by thinning and as a source of revenue. It is therefore constantly encouraged.

There is little doubt but that the time will come when the Christmas tree business will become a recognized industry in this country, and that as much attention will be given to it as will be given to the growing of crops of timber for other uses. This time may not be far off, for it is already understood that only through the practice of forestry, which means both the conservation of the timber which remains and carefully planned systems of reforestation, will it be possible to supply the country with its forty billion feet of lumber needed each year, as well as the few million little trees used at Christmas time.

Practically all conifers can be and are used as Christmas trees in this country, but the most popular ones are the firs, spruces, pines and the cedars. The pines are in great demand for Christmas trees when fir and spruce are not available, or are only to be had at a high price. Throughout Maryland and Virginia, and in Washington, the Virginia pine and, to a lesser extent, the cedar supply the demand. The fir is abundant in Colorado, but it grows in high, inaccessible places, and therefore the Douglas spruce and the lodgepole pine are more often used. The lodgepole pine is also popular in Wyoming and other Rocky Mountain states. In California it is not uncommon to find the incense cedar and young coast redwoods used as Christmas trees.



QUESTIONS AND ANSWERS

Many of our readers frequently desire to secure some expert advice regarding various features of forestry work, and do not know to whom to apply for the information.

The Editor has accordingly decided to establish this column in which he will be glad to publish such questions as may be sent to him, and give the answers, whenever the questions relate to any detail of the work which this Association is doing or such information as it can give.

The Editor requests that communications be written on one side of the paper only and if possible, be typewritten.

Asheville, N. C.

EDITOR AMERICAN FORESTRY.—Will you kindly recommend some book describing the trees and shrubs of North Carolina?

ALLEN G. MILLER,

Dr. J. K. Small's "Flora of the Southern States" describes all of the trees and

shrubs which Mr. Miller is likely to meet with in North Carolina, but this work is not illustrated. The only work I know of containing illustrations is one entitled Britton and Brown's "Illustrated Flora of Northern United States." This, however, is a rather expensive work. I do not know of any sufficiently exhaustive publication with illustrations and descriptions of shrubs in the region referred to.

Dr. C. S. Sargent's "Manual of Trees of North America" and Dr. N. L. Britton's "Forest Trees of North America" are both compact illustrated works which would serve Mr. Miller. Dr. Sargent's work would probably meet his needs best for trees, as it contains all of the information he desires on these plants.

Very truly yours,

GEO. B. SUDWORTH,
U. S. Forest Service.

COMING MEETINGS

Officials of forestry, lumber, timberland and fire protection associations are invited to send to AMERICAN FORESTRY notices of their meetings to be published in this column.

December 2-3—Western Forestry & Conservation Association, Seattle, Wash.

December 3—Northwestern Hardwood Lumbermen's Association, Minneapolis, Minn. Annual meeting.

December 4-6—National Rivers & Harbors Congress, New Willard Hotel, Washington, D. C.

December 7—North Central Missouri Retail Lumber Dealers' Association, Moberly, Mo.

December 18—Lumber Manufacturers' Association of Southern New England, Willimantic, Conn. Monthly meeting.

January 6-7—Meeting of Eastern Foresters' Association, at Lakewood, N. J.

January 8—Annual Meeting, American Forestry Association, at Washington, D. C.

January 9-10—Conference of State Foresters under auspices of the Forest Service, at Washington, D. C.

January 14-16—Nebraska Lumber Dealers' Association, Rome Hotel, Omaha, Nebr. Annual meeting.

January 14-16—Northwestern Lumbermen's Association, Minneapolis, Minn. Annual meeting.

January 15—Third annual convention, North Carolina Forestry Association, at Raleigh, N. C.

January 21-23—Ninth annual convention American Wood Preservers Association, Hotel Sherman, Chicago.

January 21-23—Ohio Association of Retail Lumber Dealers, Cleveland, Ohio.

January 21-23—Union Association of Lumber and Sash and Door Salesmen, Cleveland, Ohio. Annual meeting.

January 21-23—Colorado & Wyoming Lumber Dealers' Association, Denver, Colo. Annual meeting.

January 22-24—Southwestern Lumbermen's Association, Kansas City, Mo. Annual meeting.

January 29-30—Retail Lumber Dealers' Association of the State of New York, Hotel Utica, Utica, N. Y. Annual meeting.

January 29-30—Pennsylvania Lumbermen's Association, Hotel Walton, Philadelphia, Pa. Annual meeting.

February 4—Canadian Lumbermen's Association, Ottawa, Ont. Annual meeting.

February 5—Canadian Forestry Association, Ottawa, Ont. Annual business meeting.

February 13-15—Western Retail Lumbermen's Association, Masonic Temple, Spokane, Wash. Annual meeting.

STATE NEWS

Rhode Island

Arrangements have been perfected to secure the co-operation of the rural mail carriers in reporting forest fires to the wardens in Rhode Island. Several towns have just appointed committees and appropriated money for the establishment of fire lookout stations. Over 160,000 trees, representing about 75 species, have been planted this year in Warwick, Cranston, East Greenwich and Pawtucket. A survey of the natural resources of the State is in progress by Professor C. W. Brown, under the general direction of the State Conservation Commission, of which the Commissioner of Forestry is a member.

In the town of Glocester a gigantic seedling chestnut of great age was felled, when out jumped a menagerie including a raccoon, gray squirrel, flying squirrel, screech owl and insects.

Maine

There is a movement on foot to reorganize and revive the Maine Forestry Association, which has been practically defunct for the past four or five years. It is the intention to have this organization take an active part in having the present appropriation for forestry in Maine increased by the next Legislature, so as to put the work on a more substantial basis.

Pennsylvania

Aside from the general reserve and department work, there is nothing of special importance taking place in the forestry work in Pennsylvania at the present time. The department has under contract and will have turned over to the State in a month or so enough land to bring the reserve area to the million-acre mark.

Recently a number of small forest fires have occurred within the State, and it is very likely, now that hunting season has opened, that we may expect quite a few fires. With our protection of reserves we have reason to expect that these fires will not reach large size, and with the interest which sportsmen themselves are taking, and with the assistance of the fire wardens all over the State, as well as the boy scouts, there is no reason why fires outside of the reserves should reach large size. Thus far the State has been comparatively free of any serious fires this year.

Kentucky

Kentucky joins the front ranks of the States interested in the Forestry move-

ments. A movement which has been underway for the last ten years in Kentucky for the establishment of a forest policy within the State was crystallized into Law at a meeting of the Legislature during the winter 1910 and 1911, when a State Board of Forestry and the office of a State Forester were created. The Law which was enacted is a very far-reaching and intelligent law, and credit for this must be given to the Kentucky Federation of Women's Clubs.

Governor James B. McCreary has interested himself very extensively in this movement for the creation of the State Board of Forestry, and also for other progressive conservation measures which were enacted in the Law last winter. In accordance with this law, a State Board of Forestry was appointed by the Governor, and at a meeting in the latter part of August, a State Forester was appointed. This appointee was Mr. J. E. Barton, who has been connected with the U. S. Forest Service for the last seven years and who for the last four years has been Supervisor of the Pend Oreille National Forest in Northern Idaho. Mr. Barton took charge of the work on the first of September, and the work of organization under the law is going steadily forward. The people of Kentucky are manifesting a deep interest in the forest movement within their State, and it is expected within a comparatively short time that forest reserves will be created as demonstrations of forestry as a business and a science, and that nurseries will be furnished to provide stock for planting on the forest reserves and for the people of the State. One nursery will be started on the State Fair grounds at Louisville.

As an evidence of the interest of the people of the Commonwealth in forestry was the enthusiasm shown in connection with the planting of the Arboretum on November 13, on the grounds back of the State Capitol at Frankfort, Ky., which is the first arboretum on public grounds to be established in the United States. Eventually each county will be represented by a tree. Arbor Day was celebrated at the same time as the planting of the arboretum, and a large number of the State officials took an active part in the work.

Massachusetts

As was stated in the November number of AMERICAN FORESTRY, the Massachusetts Legislatures of 1911 and 1912 passed a resolve submitting to the people a proposed amendment to the Constitution giving to the General Court authority to prescribe the methods of taxing wild or forest lands. Through the efforts of a committee appointed by the Bos-

ton Chamber of Commerce and Massachusetts Forestry Association, working jointly in urging upon the voters of the State the importance of the proposed amendment as a means of encouraging forestry in Massachusetts, it was adopted at the recent election by an overwhelming majority. The personnel of the committee referred to is: Chairman, Harold Parker, ex-chairman of the Massachusetts Highway Commission; F. W. Rane, Massachusetts State Forester; Prof. Spencer Baldwin, professor of economics, Boston University; F. E. Olmstead, of the forestry firm of Fisher, Bryant & Olmstead; Allen Chamberlain, president of the Appalachian Mountain Club, and Mr. Harris A. Reynolds, secretary of the Massachusetts Forestry Association. This committee meets semi-monthly, and is now engaged in the rather difficult task of preparing a bill to present to the next session of the Legislature, which if enacted into law, it is hoped will eliminate many of the objectionable features of the present methods of taxing wild and forest lands, and become an important factor in stimulating the reforestation work in Massachusetts, as well as conserving the present wooded areas.

In order to obtain definite information with regard to the general practice of Massachusetts assessors in appraising values on such lands, as well as to determine, if possible, what effect any change in the present methods of taxation would have upon the revenues of cities and towns of the State, Mr. Harold O. Cook and Mr. Harry F. Gould, of the State Forester's office, have, at the request of the committee, selected five towns located in widely separated parts of the State in which they will make very careful estimates of the true values of the wooded areas, as compared with the valuation placed upon them by the assessors, and get such other information as may aid the committee in their work.

The United States Bureau of Plant Industry is co-operating with the State of Massachusetts in its efforts to check the chestnut bark disease. At present a bulletin is being prepared, which, it is hoped, will lead to increased demands for assistance on the part of the Massachusetts public. A number of examinations have been made during the past year for owners of chestnut woodland who suspect the presence of the disease. Up to date, while the State Forester has paid the salary of the examiner, his traveling expenses have been charged to the applicant. Through the co-operative agreement now entered into, these expenses will also be paid, and the owner will thus obtain his advice absolutely free. It is intended to undertake certain experiments with respect to the disease, some scouting will be done independent of applications for inspection, and steps may be taken toward the eradicating of the disease in some localities. The general outlook with regard to the disease is more hopeful than at this time last year. It is true that it has spread during the past summer, but

by no means to the extent that was expected. It seems reasonable to suppose that vigorous efforts on the part of woodland owners may be able to preserve their chestnut almost indefinitely, at least in the eastern portion of the State, where the attack is least severe.

Alabama

At the next session of the Alabama Legislature Game and Fish Commissioner John H. Wallace, Jr., will present a bill looking to converting all State lands, whether held in fee or in trust, by the State of Alabama, into game refuges and forest preserves. Included in these lands are the Sixteenth Section School Lands, the Tax Redemption Lands and the Swamp and Overflowed Lands, amounting to hundreds of thousands of acres. Since these lands belong to the State they have been regarded generally as being public property, the depredation on them in the way of the stealing of timber, firing of forests and slaughtering of game has been horrible in the past.

Mr. Wallace contemplated having a paid game and forest warden service to guard these lands. The movement has met with universal approval in Alabama, and the plan will undoubtedly be enacted into a law as soon as the Legislature shall meet.

North Carolina.

The third annual convention of the North Carolina Forestry Association will meet in Raleigh on January 15, 1913. Its discussions will be largely devoted to showing the immediate need for the passage of legislation for the protection of the forests of the State. There is a strong and growing feeling throughout the State that the time has arrived for action, and this Legislature is expected to make at least a small appropriation for inaugurating such protective work.

At the last meeting of the North Carolina Forestry Association a legislation committee was appointed to draw up a forest law for the State, to be presented to, and if possible passed by, the next Legislature, which convenes early in January. This committee is called to meet some time in December to put the bill which they have been working upon in final shape so that it may be introduced during the early days of the session. This law will probably provide for some kind of firewarden system, and will also attempt to assist the railroads in the prevention of railroad fires.

At a recent meeting of the Southern Furniture Manufacturers' Association, held in High Point, N. C., an appeal was made by the Secretary of the North Carolina Forestry Association, who was present by invitation, for the co-operation and assistance of the furniture manufacturers in the campaign to procure adequate forest protective laws for the State. A resolution was passed commending the work of the Forestry Associa-

AMERICAN FORESTRY

tion and calling upon the Legislature to enact laws which will better control the individual who starts forest fires; which will enforce stricter regulations controlling railroads and other companies or individuals using spark-producing engines; which will empower some already existing state organization, or create some new state system, to enforce such laws; and which will provide an adequate appropriation to carry them into effect. Similar resolutions have been already passed by several of the chambers of commerce and other commercial bodies of the State.

Oregon

Oregon has just passed through the most successful fire season of which there is record. Aside from three crown fires which occurred in May before the fire season had really opened, and before the field force employed by the State and private timber owners was in the field, practically no timber was destroyed. These early fires were caused by carelessness in burning slashings located adjacent to standing timber, and could easily have been avoided if proper precautions had been taken by the people during the burning. The damage to timber in 1912 was less than the loss of 87,622 feet B.M. in 1911, and 1,978,841 feet B.M. in 1910. This result is due chiefly to the effectiveness of the work of the Forest Service, the Wardens employed by the State and the Patrolmen in the employ of the private timber owners. Considerable credit must also be given to a marked change in the attitude of campers, hunters and others relative to care with fire when in woods. One of the decidedly encouraging features in our work during the past season was the organization of additional county fire patrol associations. Five associations were formed during the year, bringing the total number of such organizations up to ten. The area covered by them totalled approximately 6,300,000 acres. In seven of the counties covered by fire patrol associations, the County Supervising Warden employed by the State Forester also acted as manager and directed the work of the association. This arrangement gave the State Forester immediate supervision of the fire protection work over a relatively large portion of the timber section of the State.

The need of a map of Oregon showing the cover of lands in the State which should be protected from fire, has long been felt by the State Forester. The work of obtaining data for such a map was started during the fall by placing eleven men in the field in the Northwestern section of the State. These men were instructed to prepare a map of the district assigned to them, showing the following information:

1. Location of land bearing merchantable timber, whether old or second growth.
2. Location of land covered with brush.
3. Location of cut-over land bearing unmerchantable second growth.

4. Location of all other cut-over land.
5. Location of old burns bearing unmerchantable second growth.
6. Location of burned areas not included under class 5.
7. Location of land used primarily for agricultural and grazing purposes.

It is expected that this data covering approximately the Northwest quarter of the State will be available about January 1, and just as soon as possible thereafter a lithograph forest cover map, on a scale of $1\frac{1}{2}$ " to the township, will be published. The remainder of the State will be worked over during the coming year and a complete cover map will be issued just as soon as possible. The information that will be shown on a map of this kind will be of immense value to the State Forester in connection with the fire protection work and especially in locating fire patrol districts.

Maryland

An effort is being made in Maryland to promote the planting and care of road-side trees. The State has expended several millions of dollars in the last few years for improved roads and the work is being continued, with the prospect that the whole State will, in a few years, be traversed by a system of improved highways. The greatest interest in tree planting has been shown by small towns, and their good influence is extending out into the rural sections. Illustrated talks are being given, showing the greater attractiveness of highways outlined by rows of trees, as contrasted with roads along which there are no trees. The State also proposes to establish a forest nursery, a portion of which can be devoted to the growing of trees suitable for planting along road sides. An effort is being made to secure a suitable law which will be administered by some central head, and not left entirely to local authorities, in order that there may be uniformity in the methods to be pursued, proper trees selected for planting and their arrangement made harmonious.

The plan is meeting with general approval wherever presented and the prospect is exceedingly good for securing a model road side tree law from the next Legislature, in January, 1914.

Michigan

Negotiations between the Forest Service and the Public Domain Commission of the State of Michigan are under way for the exchange of certain National and State forest lands. Such exchange is made possible by a law recently enacted by Congress, the object of which is to enable the Government to more completely solidify its holdings within the boundaries of the National Forests in Michigan. A State law, of similar purport, giving the State of Michigan authority to exchange lands with the Federal Govern-

ment, as well as with individuals, has been in force for more than a year. The lands involved comprise some 25,000 or 30,000 acres, located principally in the counties of Luce, Crawford, Roscommon, Gosco and Oscoda.

Wisconsin

The Wisconsin State Board of Forestry now has about 2,500,000 seedlings and transplants in the main forest nursery at Trout Lake, which is in the heart of the State Forest Reserves. As will be noted from the following table, the cost of raising the planting material has been kept down to a very reasonable figure.

1 YEAR SEEDLING.

	Cost to Number raise per M.
White pine -----	632,000 \$.46
Scotch pine -----	190,000 .45
Western yellow pine-----	60,000 .55
Norway spruce -----	11,000 1.06
Colorado blue spruce-----	40,000 .40
European larch -----	400 .88

2 YEAR SEEDLINGS.

	Cost to Number raise per M.
White pine -----	436,000 \$.47
Norway pine -----	576,000 .47
Scotch pine -----	145,000 .46
Western yellow pine-----	13,000 .56
Norway spruce -----	20,000 1.07

2 YEAR TRANSPLANTS.

	Cost to Number raise per M.
White pine -----	21,000 \$1.25
Scotch pine -----	20,000 1.24
Western yellow pine -----	68,000 1.33

Ohio

The city of Cincinnati during the past few years has come into possession of about fifteen hundred acres of land either within the city limits or contiguous thereto.

State Forester Secret was consulted recently regarding its use, and made the suggestion that a portion or all be devoted to a forest park, modelled somewhat after the city forest parks of Germany. This plan met with the unanimous approval of the Board of Park Commissioners. A co-operative agreement was entered into, whereby the State Forestry Department is to draw up plans, and supervise the planting and improvement work. Arrangements have been made for establishing a nursery on one of the tracts, where about 200,000 trees will be placed the coming spring.

The proposed work at Cincinnati offers a most excellent opportunity for the establishment of demonstration forests, and especially for initiating the scheme of city forest parks. The areas contain some native woodlots in

cultured conditions, but there are some fine specimens of original forest trees including oaks, beech, maples, tulip, poplars, gums, basswood, walnut, etc.

The work will be along the line of practical forestry. In the planting operations as many different kinds of tree species will be used as seem adaptable to conditions.

The ornamental features will not be considered, but the plantings will be so placed as to enhance the aesthetic value. It is intended to reserve open park areas, especially where groups of the original oaks and beech stand. The topography and general aspect of the land offers splendid opportunity for visitors, and this feature will not be overlooked. The woodlots will be reconstructed whenever possible, but it is proposed to reserve as many of the old trees as may seem practical.

This undertaking is probably the first of its kind in this country, and it is hoped that other cities will soon follow the Cincinnati plan.

Vermont

The University of Vermont has decided definitely that it can best subserve the interests of the State by teaching forestry as a branch of modern farming, rather than in training up a small group of highly specialized foresters, most of whom would have to seek positions outside the State. Forestry conditions in this country are such that it will be impossible for a forester to earn a salary that will repay him for a four years' college course, on a forest tract of less than 10,000 acres. There are at present very few private tracts of this kind upon which foresters are employed; and the number does not bid fair to increase in proportion to the number of technically trained foresters. In fact, with the present tendency on the part of Congress to scrimp in its appropriation for the National forests, and other constructive work, in favor of increased pensions and other vote-getting measures, there seems to be an imminent danger of lack of employment for newly trained foresters.

On the other hand, there is an ever-increasing demand on the part of large landowners for trained farm managers. More and more these men will be required to have a working knowledge of timber estimating and such silvicultural measures as thinning and planting. In connection with intensive agriculture a graduate of an agricultural college can find remunerative employment on a few hundred acres, and the student with some forestry knowledge will find that he has a decided advantage in obtaining such positions over one who has no knowledge of forestry.

Many of the graduates of an agricultural college go back to their own farms, and in the long run the knowledge which they have acquired along forestry lines will help them to prosperity. When lumber has greatly increased in value over its present value, the

farmer who has conserved his woodlot will look back gratefully to his college course in forestry. Many of these men later become members of the State Legislatures, and their influence for sound forestry principles, inculcated while at college, will go far toward counteracting the hasty, ill-considered forestry legislation, which is a most threatening feature of the present forestry situation.

The State University cannot confine its work to teaching within its walls, and extension work among the people of the State is most important. There is at present a bill before the Legislature of Vermont to provide for agricultural extension on the part of the State University. It is very much to be desired that this bill shall pass and that forestry extension may be carried on as a part of the new work.

For the sake of students desiring to specialize in forestry, and in other scientific professions, a science course has been adopted in the University of Vermont which will enable a student to take all the work required for admission in any professional forest school. Any student who can complete this work in three years with one-half of his marks of (B) grade, and none below (C) grade, may obtain his degree of bachelor of science after the satisfactory completion of his first year in a forest school of recognized standing.

California

The State of California depends upon a voluntary firewarden system for the protection of its vast timber resources. The firewardens are public-spirited citizens who have the conservation of our forests at heart. They have the powers of a peace officer to arrest without warrant for violations of the forest laws. They rendered very efficient assistance during the calendar year of 1912, and up to November 1 made 39 arrests. The cases were prosecuted by Justices of the Peace and the District Attorneys. Convictions were secured in 29 cases; in 1 case the offender was acquitted; 3 were released; 2 dismissed; in 2 cases the fines were suspended, and in another case, because of extenuating circumstances, the offender was placed on probation for six months in lieu of a fine.

A favorable public sentiment against forest fires has grown steadily. It has been shown, however, that the maximum efficiency has been obtained through the efforts of the voluntary firewardens. It is apparent that the fire situation can be successfully handled only through the maintenance of a paid State patrol, and toward that end an effort will be made to secure the necessary appropriation at the coming Legislature.

A Forestry Club has been organized at the University of California for the purpose of securing an appropriation from the Legislature for the creation of a forestry department. There is a membership of about forty earnest students from the botany and agricultural departments. They hold regular bi-weekly meetings and secure such speakers as they can to address them upon forestry and allied subjects. They have succeeded in interesting members of the Faculty in their undertaking. All of these students wish to follow forestry as a profession, but many of them feel that they prefer to receive their training in the West rather than in Eastern universities.

The field for practical work and observation in California is unsurpassed by other States. Conservative forestry is being conducted on 20 national forests where the students can work during the summer months. Their milling, logging and other practical work can be obtained upon the large holdings of the timber companies within a comparatively short distance of the University campus.

The conservation of our natural resources can here be assured by the practice of forestry principles on private holdings which comprise three-fourths of the entire timbered area. By training California men here on the ground it is probable that, through their connection with timber interests, they will eventually apply their knowledge of forestry principles in the management of the forests of our State. Every assistance should be given the members of the Forestry Club in their endeavor to secure an appropriation to establish a Department of Forestry at the University of California.

TO HEAD A RANGER SCHOOL

F. B. Moody, assistant State Forester of Wisconsin, visited the New York State College of Forestry, Syracuse University, recently. Mr. Moody is a graduate of the Forestry School of the University of Michigan and has been connected with the State work in Wisconsin for the last six years. On January 1, Mr. Moody will take up his duties as head of the Ranger School to be established by the State Forest Service and the University of Wisconsin. The Ranger School is similar in scope to that conducted by the New York State College of Forestry at Wanakena.

NEWS NOTES

At Cornell University

The faculty of the Department of Forestry at Cornell has just been increased by the appointment of Mr. Arthur B. Recknagel as professor. Mr. Recknagel graduated from Yale College in 1904, and from the Yale Forest School in 1906. He has been engaged in many kinds of work in the U. S. Forest Service, and is at present an Assistant District Forester in District 3. The plan of the forestry course at Cornell is that each student is to devote the fifth year of his college work to advanced study or research along the lines in which he wishes to specialize. Accordingly, each member of the faculty is expected to offer advanced work in one line. Mr. Recknagel will develop forest management as his specialty. As a part of the work in forest management, he will have charge of the eight weeks of work in camp which will be given the graduate students in the spring term. For the present, Mr. Recknagel will also teach lumbering and wood technology.

It is expected that ground will be broken very soon for the forestry building at Cornell, as the contract has just been let. The building will include three laboratories for wood technology and timber testing; laboratories for silviculture, mensuration, dendrology and utilization; a lecture room with an automatic window-darkening apparatus to facilitate the use of lantern slides; class-rooms, a reading room, seminar, forestry club room, museum, drafting room and a series of offices. There will also be a locker room, freight room, instrument room and tool room. The building is to be ready for occupancy sometime during the college year 1913-14. At present the Department of Forestry is occupying a laboratory, class room and offices in one of the recently finished buildings of the College of Agriculture.

The Department has just issued an announcement of its work, containing full details as to the plan of the course.

Dr. Hamilton's New Position

Dr. Frederick W. Hamilton, recently President of Tufts and Jackson Colleges, has re-entered the business field, from which he withdrew several years ago for professional work as an educator, and has taken the position of General Manager of the American Forestry Company.

As a young man, Dr. Hamilton's successful business career, combined with his broad

education, early brought him to the front. For many years he was a trustee of Tufts College and later became its President, keeping at the same time other high positions in the educational world, including membership of the Massachusetts State Board of Education.

The success and rapid growth of the American Forestry Company, with its "Little Tree Farms," open a field of unusual opportunity to a man of Dr. Hamilton's caliber, in the combination which forestry offers of the commercial and the aesthetic, and it is, therefore, with much enthusiasm that Dr. Hamilton has associated himself with the Company, and taken up his new duties.

This affiliation will allow Mr. Theodore F. Borst, Forest Engineer of the Company, to devote his energies more exclusively to the professional side of the prosperous industry of which he was the founder.

Dr. Hamilton will from now on make his headquarters at the offices of the American Forestry Company at 15 Beacon Street, Boston, Mass.

The American Forestry Company is to be congratulated upon obtaining the services of a man who has made a marked success in the fields both of business and education.

New Forest Reserves.

Following investigations which have been made by officers of the Canadian Forestry Department, it is proposed to set aside a number of new forest reserves. The largest is on the shores of Lesser Slave Lake, and comprises 4,788 square miles. About 350,000,000 feet of lumber is available there, and the reservation is recommended because of the unsuitability of the land for agricultural purposes and the necessity of conserving a timber supply for the future.

North of Lake la Biche, Alberta, another reserve is suggested. In Saskatchewan a reserve has been recommended at Fort a la Corne, while one in Manitoba is likely to be established. It is intended to extend considerably this year the pine forest reserve north of Prince Albert, and also those in British Columbia.

CURRENT LITERATURE

MONTHLY LIST FOR NOVEMBER, 1912

(Books and periodicals indexed in the
Library of the United States
Forest Service)

Forestry as a Whole

Weber, Heinrich, editor. *Jahresbericht über die fortschritte, veröffentlichtungen und wichtigeren ereignisse im gebiete des forst—jagd—und fischereiwesens für das jahr 1911; supplement zur Allgemeinen forst—und jagd-zeitung*, 186 p. Frankfurt am Main, J. D. Sauerländer's verlag, 1912.

Bibliographies

Cockrill, Elizabeth. *Bibliography of Tennessee geology, soils, drainage, forestry, etc.* 119 p. Nashville, 1911. (Tennessee Geological Survey. Bulletin 1 B.)

Proceedings and reports of associations, forest officers, etc.

Great Britain—Commissioners of woods, forests and land revenues. 90th report. 119 p. London, 1912.

St. Petersburg—Lyesnoi institut (Forest institute). *Izvyestiya* (Contributions), vol. 23. 163 p. pl. St. Petersburg, 1912.

Société dendrologique de France. *Bulletins*. no. 21-24. Paris, 1911-12.

Société forestière de Franche-Comté et Belfort. *Bulletin trimestriel*, v. 11, no. 7. 132 p. Besançon, 1912.

Straits Settlements—Conservator of forests. Annual report on forest administration for the year 1911. 23 p. Singapore, 1912.

Forest Aesthetics

Street and park trees

Gaylord, F. A. *Shade trees*. 69 p. il., pl. Albany, N. Y., 1912. (N. Y.—Conservation commission—Division of lands and forests. Bulletin 7.)

New Jersey—Forest park reservation commission. *The planting and care of shade trees*, by Alfred Gaskill, including papers on Insects injurious to shade trees, by John B. Smith, and Diseases of shade and forest trees, by Mel T. Cook. 128 p. il., pl. Trenton, N. J., 1912.

Newark—Shade tree commission. Eighth annual report, 1911. 68 p. il. Newark, N. J., 1912.

North Carolina—Geological and economic survey. *Planting street trees*. 4 p. Chapel Hill, 1912. (Press bulletin no. 57.)

Forest Description

Foster, J. H. *Forest conditions in Louisiana*. 39 p. il., pl. Washington, D. C., 1912. (U. S.—Dept. of agriculture, Forest service. Bulletin 114.)

Holmes, J. S. *A forester's notes from Europe; Switzerland*. 3 p. Chapel Hill, N. C., 1912. (N. C.—Geological and economic survey. Press bulletin no. 85.)

Moon, F. Frank. *Forest conditions of Warren county*. 31 p. pl., map. Albany, N. Y., 1911. (N. Y.—Conservation commission—Division of lands and forests. Bulletin 6.)

Stephen, John Wallace. *Forest conditions of Oneida county*. 20 p. pl., map. Albany, N. Y., 1911. (N. Y.—Conservation commission—Division of lands and forests. Bulletin 4.)

Forest Botany

Trees; classification and description

Arnold arboretum. *Bulletins of popular information*, nos. 29-31. Jamaica Plain, Mass., 1912.

Clements, Frederic E. and others. *Minnesota trees and shrubs; an illustrated manual of the native and cultivated woody plants of the state*. 314 p. il., pl. Minneapolis, University of Minnesota, 1912.

Japan—Dept. of agriculture and commerce—Bureau of forestry. *Icones of the bamboos of Japan*, with 15 plates. 73 p. and portfolio of plates. Tokyo, 1912.

West Laurel Hill cemetery. *List of trees and shrubs in West Laurel Hill cemetery*. 48 p. il. Philadelphia, Pa., 1911.

Silvics

Studies of species

Woodbury, T. D. *Yield and returns of blue gum (Eucalyptus) in California*. 8 p. Wash., D. C., 1912. (U. S.—Dept. of agriculture—Forest service. Circular 210.)

Silviculture

Planting

United States—Dept. of agriculture—Forest service. *Extracting and cleaning forest tree seed*. 23 p. Wash., 1912. (Circular 208.)

Forest Protection*Insects*

Mason, E. B. The southern pine beetle and its control. 4 p. Chapel Hill, 1912. (N. C.—Geological and economic survey. Press bulletin 60.)

Diseases

Giddings, N. J. The chestnut bark disease. 19 p. il. Morgantown, 1912. (W. Va.—Agricultural experiment station. Bulletin 137.)

Pennsylvania chestnut tree blight commission. The chestnut blight disease; means of identification, remedies suggested, and need of co-operation to control and eradicate the blight. 9 p. pl. Harrisburg, 1912. (Bulletin 1.)

Pennsylvania chestnut tree blight commission. Treatment of ornamental chestnut trees affected with the blight disease. 7 p. pl. Harrisburg, 1912. (Bulletin 2.)

Animals

MacRae, Hugh. The stock law and forest protection. 5 p. Chapel Hill, 1912. (N. C.—Geological and economic survey. Press bulletin 61.)

Fire

Adams, Daniel W. Methods and apparatus for the prevention and control of forest fires, as exemplified on the Arkansas national forest. 27 p. il. pl. Wash., D. C., 1912. (U. S.—Dept. of agriculture—Forest service. Bulletin 113.)

California—State board of forestry. Forest fire report and voluntary firewardens. 43 p. Sacramento, 1912.

Plummer, Fred G. Forest fires; their causes, extent and effects, with a summary of recorded destruction and loss. 39 p. il., pl. Wash., D. C., 1912. (U. S.—Dept. of agriculture—Forest service. Bulletin 117.)

Forest Management*Forest mensuration*

Baughman, H. R. A. Baughman's buyer and seller. 12th edition. 300 p. Indianapolis, 1912.

Forest Economics*Taxation and tariff*

Pettis, Clifford R. Forest taxation. 19 p. Albany, N. Y., 1912. (New York—Conservation commission—Division of lands and forests. Bulletin 8.)

Statistics

United States—Dept. of agriculture—Bureau of statistics. Exports of farm and forest products, 1909-1911, by countries to which consigned. 100 p. Wash., D. C., 1912. (Bulletin 96.)

United States—Dept. of agriculture—Bureau of statistics. Imports of farm and forest products, 1909-1911, by countries

from which consigned. 83 p. Wash., D. C., 1912. (Bulletin 95.)

Forest Administration

United States—Dept. of agriculture—Forest service. October field program, 1912. 31 p. Wash., D. C., 1912.

Forest Utilization*Lumber industry*

Northern hemlock and hardwood manufacturers association. Birch, America's finest wood. 16 p. il. Wausau, Wis., 1912.

Pacific logging congress. Fourth annual session, Tacoma, Wash. 44 p. Chicago, American lumberman, 1912.

Southern logging association. Proceedings, 2d annual meeting. 54 p. il. New Orleans, Lumber trade journal, 1912.

Stailey, S. C., comp. Lumber inspection rules; containing rules governing the manufacture and inspection of different kinds of lumber, government tests of the comparative strength of building timbers, and other useful information for everyday use. 356 p. il. N. Y., A. D. Beeken, 1912.

Forest by-products

Betts, Harold Scofield. Possibilities of western pines as a source of naval stores. 23 p. pl. Wash., D. C., 1912. (U. S.—Dept. of agriculture—Forest service. Bulletin 116.)

Wood technology

Heim, A. L. Mechanical properties of redwood. 32 p. il. Wash., D. C., 1912. (U. S.—Dept. of agriculture—Forest service. Circular 193.)

Wood preservation

Weiss, Howard F. Prolonging the life of crossties. 51 p. pl. Wash., D. C., 1912. (U. S.—Dept. of agriculture—Forest service. Bulletin 118.)

Auxiliary Subjects*Botany*

Correa, M. Pio. Flora do Brazil; algumas plantas uteis, suas applicaçoes e distribuição geographica. 154 p. Rio de Janeiro Typographia da Estatística, 1909.

Japan—Dept. of agriculture and commerce—Bureau of forestry. Illustrations of Japanese fungi. 12 p. pl. Tokyo, 1912.

Periodical Articles*Miscellaneous periodicals*

Agricultural gazette of Tasmania, Aug., 1912.—Western afforestation, by L. A. Evans, p. 313-16.

Agricultural journal of the Union of South Africa, Sept., 1912.—White ants in Natal; their nature and treatment, by Claude Fuller, p. 345-69; The willow tree caterpillar, Angelica tyrrea, by C. B. Hardenberg, p. 397-418.

- American city, Aug., 1912.—Renourishing trees, by J. H. Prost, p. 127-8.
- Arizona, Oct., 1912.—Sheep industry in Arizona; its profits, losses and annual migration of the flocks, by Bert Haskett, p. 9-10.
- Botanical gazette, Oct., 1912.—Comparative anatomy of dune plants, by Anna M. Starr, p. 265-305.
- Breeder's gazette, Oct. 18, 1912.—Shade trees for farm homes, by D. C. W., p. 781-2.
- Breeder's gazette, Nov. 6, 1912.—The cypress trees in Washington, by Joseph E. Wing, p. 967.
- Country gentleman, Aug. 31, 1912.—Forestry, a farm problem, p. 1; Making the most from pine orchards, by Charles Davis, p. 4; The emergency silo; stave types that can be built quickly, by Charles Dillon, p. 21.
- Country gentleman, Sept. 28, 1912.—Asphalt as a wood preserver, by N. E. Thatcher, p. 19.
- Country gentleman, Oct. 12, 1912.—The influence of the forest on the land, by Enos T. Mills, p. 3-4, 24.
- Country life in America, Sept. 1, 1912.—Sound, sick and crippled trees, p. 36.
- Country life in America, Oct. 15, 1912.—Interior wood treatments, the best woods for interior trim, how to finish them, and what it costs, by Phil M. Riley, p. 55-7.
- Craftsman, Oct., 1912.—Cypress; its picturesque qualities and how to finish it, p. 114-5.
- Gardeners' chronicle, Sept. 14, 1912.—Forests and rainfall, p. 214.
- Gardeners' chronicle, Sept. 28, 1912.—Reclaiming sand dunes in Belgium, by A. D. Webster, p. 243.
- Gardener's chronicle, Oct. 5, 1912.—Forest surveys, by G. W., p. 261; Afforestation in the Black country, p. 290-2.
- Independent, Oct. 10, 1912.—Celebrated and historic trees, by J. G. Wilson, n. 828-36.
- Journal of the association of engineering societies, Sept., 1912.—Forestation and its relation to flood waters of the lower Mississippi river, by W. B. Gregory.
- Nature, Aug. 29, 1912.—Forests and rainfall, p. 662-4.
- Pine cone, Oct., 1912.—Products of the northern pine forests, p. 3-7.
- Plant world, Nov., 1912.—The phylogeny of grasses, by William H. Lamb, p. 264-9.
- Quarterly journal of economics, Aug., 1912.—Group of trusts and combinations, including the lumber trust, by W. S. Stevens, p. 630-41.
- Scientific American, Oct. 19, 1912.—Source of commercial divi divi, p. 325.
- Scientific American supplement, Sept. 14, 1912.—Some experiments on the hydrolysis of sawdust; sugar and alcohol from wood, by Wallace P. Cohoe, p. 166-7.
- Technical world magazine, Nov., 1912.—Log driving in the desert, by Nelson L. Le Grand, p. 311-22.
- Torreya, Oct., 1912.—On the origin and present distribution of the pine-barrens of New Jersey, by Norman Taylor, p. 229-42.
- Trade journals and consular reports*
- American lumberman, Oct. 19, 1912.—Uses of tupelo gum or bay poplar, p. 25; Black walnut defended, p. 43; Poplar conservation; the people's co-operation with lumbermen an essential, p. 43; The electric log haul, by C. D. Cole, p. 50-1; Diseases of wood, p. 64.
- American lumberman, Nov. 2, 1912.—Disposing of slash, by E. T. Allen, p. 44.
- American lumberman, Nov. 9, 1912.—Cigar box wood, p. 40.
- Barrel and box, Oct., 1912.—Identification of trees, p. 45; Packing house cooperage woods, p. 46; White oak in tight cooperage, p. 47.
- Canada lumberman, Oct. 15, 1912.—Forest conditions in Quebec province, by G. C. Piche, p. 34-35; A forestry students' camp, by R. B. Miller, p. 38-9; Preventing waste in forest products, by E. J. Palmer, p. 39-40; Cost of manufacturing wooden boxes, p. 42-4.
- Canada lumberman, Nov. 1, 1912.—The economy of artificial drying of lumber, p. 28-9; New Brunswick timberland situation, p. 30-2.
- Engineering news, Oct. 31, 1912.—Correction tables for strengths of commercial size timbers, by R. C. Hardman, p. 826; Controlling the Mississippi river, by C. McD. Townsend, p. 832-5.
- Engineering Record, Sept. 7, 1912.—Bending tests with wood executed at the Danish state testing laboratory, Copenhagen, p. 269.
- Hardwood record, Oct. 25, 1912.—Silver or soft maple, p. 23-4; Uses and supply of kauri pine, by L. L. D., p. 24; A remarkable logging railroad, by H. H. G., p. 25-8; Satinwoods of commerce, p. 32-3; Crosstie evolution, by G. D. C., p. 38-9; Fancy woods for floors, p. 39.
- Hardwood record, Nov. 10, 1912.—Lodgepole pine, p. 23-4; New system of quarter-sawing, p. 24-5; River birch for cooperage, by S. J. Record, p. 25; Bird peck in hickory, by S. J. Record, p. 27; The wood of the ashes, by S. J. Record, p. 28-9; Hardwoods used for matches, p. 29; Uses for blight killed chestnut, by S. J. Record, p. 32-3; Willow, a new substitute wood, p. 35-6.
- Lumber world review, Oct. 10, 1912.—Paper on creosote oil, by Hermann von Schrenk, p. 24-5.
- Lumber world review, October 25, 1912.—Overhead system of rough ground logging, by Fred R. Olin, p. 18-19; The Port Reading creosoting plant, p. 28-30.
- Lumber world review, Nov. 10, 1912.—Hardwoods that are largely used in treated railroad ties, by Bruce Odell, p. 19; Electric hauling in logging operations, by C. O. Cole, p. 20-1; Treatise on the

- structure of wood, by R. S. Kellogg, p. 22-3; Historical developments of wood preserving in the United States, by E. A. Sterling, p. 24-6.
- Mississippi Valley lumberman, Nov. 1, 1912.—Louisiana timber conservation tax, p. 30-1.
- Paper, Oct. 16, 1912.—What the government is doing in forestry, by Henry Solon Graves, p. 15-16, 38; From tree to pulp and paper; story of the wood-pulp industry; forms of pulp and modes of preparing it for news print, p. 17-19, 38.
- Paper, Oct. 23, 1912.—Lectures on cellulose, by C. F. Cross, p. 23-4.
- Paper, Oct. 30, 1912.—Laces, yarns and textiles from wood-pulp, p. 15; The popular in the Ticino valley, by Enrico Pirola, p. 19-22.
- Paper, Nov. 13, 1912.—Modern pulp and paper mills in Norway, p. 17-20, 41; Aspects of the resin and wood-pulp industries, by J. F. Briggs, p. 21-2.
- Pioneer western lumberman, Nov. 1, 1912.—The California redwood lumber industry, by J. R. Newsom, p. 11-13.
- Pulp and paper magazine, Oct., 1912.—Development of chemical wood-pulp industry in Sweden and reclaiming of by-products, by C. E. Bandelin, tr., p. 314-20.
- St. Louis lumberman, Oct. 15, 1912.—The lumberman's viewpoint, by E. G. Griggs, p. 55-6; Michigan agricultural college forestry summer term, p. 62-3.
- St. Louis lumberman, Nov. 1, 1912.—The silo, the high cost of living, and the lumberman, by J. F. Goodman, p. 54 B-C; The stone trees of Arizona; a forest gone to sleep, by Charles F. Lummis, p. 54 G; Dwarf larch and spruce, p. 54 G; Some Philippine woods, by H. N. Whitford, p. 63.
- Southern Lumber journal, Oct. 15, 1912.—Forest taxation and the preservation and perpetuation of our wood lands, by Leonard Bronson, p. 42.
- Southern lumber journal, Nov. 1, 1912.—The taxation of timber holdings, p. 25-6.
- Southern lumberman, Oct. 19, 1912.—The present status of forestry in Tennessee, by Henry W. Lewis, p. 29-30.
- Southern lumberman, Nov. 2, 1912.—For clearing land; novel stump burner manufactured in Washington state, p. 42.
- Timber trade journal, Oct. 5, 1912.—Circulation of sap and growth of trees, by S. M., p. 471-2.
- Timberman, Oct., 1912.—Oregon agricultural college to add logging engineering to curriculum, p. 25-6; Cableway system is successfully utilized in interior British Columbia, p. 27; The University of Montana offers full and short courses in forestry, p. 40; Successful 20th annual session of National irrigation congress, p. 48 F; The nation and the states in forestry, by Henry Solon Graves, p. 48 G-H.
- United States daily consular report, Nov. 6, 1912.—Greenheart piling and Guiana timber, by Rea Hanna, p. 672-3.
- United States daily consular report, Nov. 7, 1912.—Scandinavian pulp-mill stones, by Henry Bordewich and others, p. 689-92; Sawmill refuse to heat and light city, by G. C. Woodward, p. 695.
- Wood craft, Nov., 1912.—Preparation and hauling of lumber for woodworkers, p. 49-50; Circulation of sap and growth of trees, p. 61-2.
- Forest journals*
- Boletin de bosques, pesca i caza, Sept., 1912.
- El progreso forestal de Bosnia i Herzegovina, by Federico Albert, p. 145-53;
- El primer ensayo de una estadística forestal de Chile, by Federico Albert, p. 154-9; Los eucaliptos que deben plantarse, by Federico Albert, p. 164-82.
- Bulletin de la Société centrale forestière de Belgique, Oct., 1912.—Le blanc du chêne, by G. Quérivet, p. 577-88; La feuillaison et le développement des plants élevés à l'ombre ou à la lumière chez le hêtre et quelques autres essences feuillues, by A. Poskin, p. 597-604; La République Argentine au point de vue physique, by Francisco Latzina, p. 604-12.
- Canadian forestry journal, July-Aug., 1912.—The British Columbia forest act, p. 88-91; Experiment needed in pulp-making, by H. R. MacMillan, p. 92-7; Government forests in Saxony, by W. G. Wright, p. 105-8; The aspen tree in the northwest, by A. Knechtel, p. 109; Export of Christmas trees, p. 110.
- Forest leaves, Oct., 1912.—Some benefits of the chestnut blight, by S. B. Detwiler, p. 162-5; How private forestry can be brought about, by S. B. Elliott, p. 165-8; Planting operations in the Bear Meadows division of the Center co. reserve, Pa., by Walter D. Ludwig, p. 168-70; Planting timber trees, by J. Linn Harris, p. 170-1; Public or private forestry, by E. A. Zeigler, p. 173-5.
- Forstwissenschaftliches centralblatt, Sept.-Oct., 1912.—Forstliche wirtschaftsbew. bestandesübersichtskarten, by Knauth, p. 480-90; Forstliches aus Baden, by E. Fieser, p. 490-505.
- Hawaiian forester and agriculturist, Sept., 1912.—Forest reserves; reports of the Supt. of forestry making recommendations with regard to three forest reserves, by Ralph S. Hosmer, p. 263-81.
- Indian forester, Oct., 1912.—List of the trees, shrubs and economic herbs of the southern forest circle of the C. P., by H. H. Haines, p. 495-509.
- Ohio forester, July, 1912.—Propagating shade and forest trees in the nursery, by E. W. Mendenhall, p. 7-8; The hickory, by J. J. Crumley, p. 8-10.
- Quarterly journal of forestry, Oct., 1912.—The forests of Formosa, by H. J. Elwes, p. 267-79; Forty years' management of woods, by D. Tait, p. 279-98; The for-

- estry exhibition at the Doncaster show of the Royal agricultural society of England, by J. C. Blofield, p. 329-33.
- Revue des eaux et forêts*, Sept. 15, 1912.—Notes forestières d'Amérique; République Argentine, by G. Lapie, p. 545-50; Conifères; essais de tableaux dichotomiques pour la détermination des espèces, by L. Pardé, p. 550-2.
- Revue des eaux et forêts*, Oct. 1, 1912.—Traitement du pin sylvestre dans la région de Paris, p. 577-86; Notes forestières d'Amériques; Chile, Paraguay, Venezuela, Amérique centrale, by G. Lapie, p. 586-93.
- Revue des eaux et forêts*, Oct. 15, 1912.—Notes forestières d'Amérique; Mexique, p. 619-24.
- Tharandter forstliches jahrbuch, 1912.—Ueber die anstellung waldbaulicher versuche und über dei klassen der forstlichen ertragstafeln, by Vater, p. 252-63; Die ausbildung der forstreferendare, by Martin, p. 293-308; Zwingen bedenken gegen die fichtenkahlschlagwirtschaft in Sachsen zu einem fruchtwechsel, by Deicke, p. 309-35; Ueber die anwendung graphischer rechnungsmethoden in der forstwissenschaft, by Hugershoff, p. 340-72.
- Zeitschrift für forst-und jagdwesen, Sept. 1912.—Ein neues vegetationshaus und seine praktische erprobung, by A. Möller, p. 527-38; Über den einfluss der streuuentnahme, by A. Schwappach, p. 538-58; Die wälder Australiens, p. 637-41.

THE ANNUAL MEETING

THE annual meeting of the American Forestry Association will be held in Washington, D. C., on Wednesday, January 8th, and notification will be sent to members in the course of a few days. As many important plans for work of vital interest for the new year are to be arranged, it is desired that there shall be a much larger attendance than usual, and it is hoped there will be.

The date having been selected just as this edition goes to press it is impossible, at this time, to announce the de-

tails of the gathering, these having not yet been decided.

A meeting of the Eastern Foresters will be held at Lakewood, N. J., on Tuesday and Wednesday, January 6 and 7, and most of them are expected to attend the American Forestry Association meeting. This is to be followed on January 9 and 10 by a conference of state foresters and others under the auspices of the Forest Service, so that the week, all told, will be a most important one for forestry.

TIMBER CONSERVATION

In a bulletin recently issued, Secretary Wilson, of the Department of Agriculture, calls attention to the fact that the State of Louisiana, ranking second in its wealth of timber only to the Pacific Coast States, will have cut all of its 199 billion feet of lumber in thirty years at the present rate of consumption unless it begins a plan of conservation and reforestation. He says: "With efficient protection of this young growth, and better utilization of the present commercial stands, the forests of Louisiana, even in the face of a much greater agricultural development than now, should remain an important source of wealth."

V